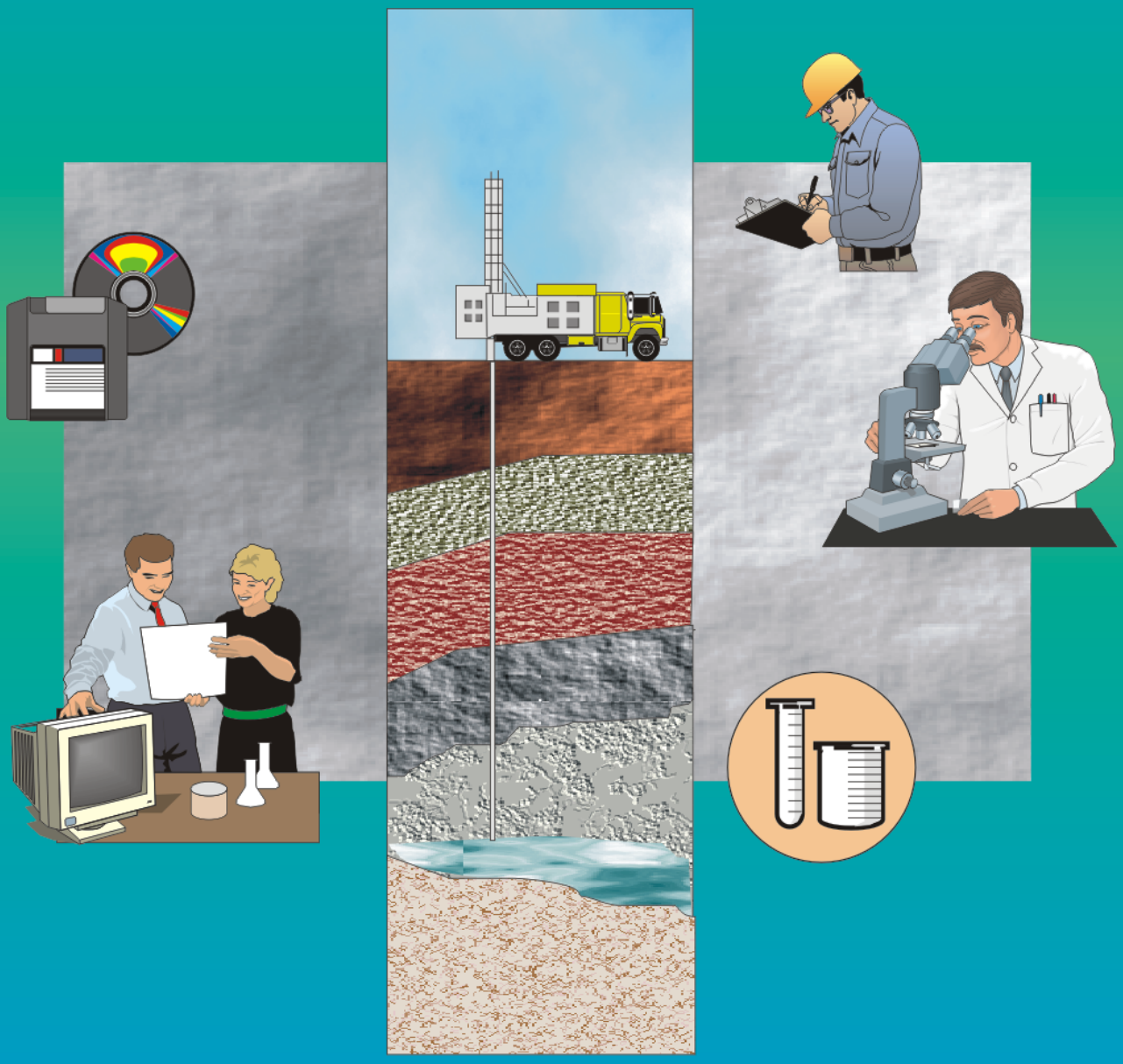
Comprehensive Electronic Data Deliverable (EDD)

Specification Manual
Version 2.0



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ACRONYMS

File Extensions	.csv	Comma Seperated Values File
	.ftp	File Transfer Protocol
	.mdb	Microsoft Database
	.txt	Text File
	.xls	Excel Spreadsheet
Acronyms	CAS RN	Chemical Abstract Service Registry Number
	CLP	Contract Laboratory Program
	CPT	Cone Penetration Test
	DNAPL	Dense Non-Aqueous Phase Liquid
	EDD	Electronic Data Deliverable
	EDP	EQuIS Data Processor
	EFDC	Electronic Field Data Checker
	ELDC	Electronic Laboratory Data Checker
	EPA	Environmental Protection Agency
	EQuIS	Environmental Quality Information System
	GEOS	Groundwater Evaluation and Optimization System
	GPS	Global Positioning System
	HUC	Hydrologic Unit Codes
	LCS	Laboratory Control Sample
	LIMS	Laboratory Informaiton Management System
	LNAPL	Light Non-Aqueous Phase Liquid
	NAD	North American Datum
	O&M	Operations and Maintainance
	PK	Primary Key
	QA/QC	Quality Assurance/ Quality Control
	ROD	Record of Decision
	RPM	Remedial Program Manager
	SDG	Sample Delivery Group
	TB	Trip Blank
	TCLP	Toxicity Characteristic Leaching Procedures
	TIC	Tentatively Identified Compound
	UTM	Universal Transverse Mercator

EXECUTIVE SUMMARY

The purpose of this specification manual is to provide detailed instructions on how to report environmental data electronically to the United States Environmental Protection Agency (EPA) Region 5 Superfund Division. The types of Superfund data that can be reported electronically include, but are not limited to, data generated during facility characterization and investigation phases, data recorded when installing monitoring wells, and monitoring data that is routinely collected after construction completion during the operations and maintenance phase. This manual describes the procedural and formatting requirements you need to know to submit your Electronic Data Deliverable (EDD) to the EPA Region 5 Superfund Division.

This EDD manual describes the requirements for reporting all **current** and **future** environmental data to EPA Region 5. EPA recognizes that some information about data collected in the past may not be readily available and in these cases data providers should refer to the "Basic Electronic Data Deliverable Specification Manual". This alternate format of the Region 5 EDD provides for less stringent reporting standards. Prior to using the "Basic Electronic Data Deliverable Specification Manual", data providers should contact Region 5 through the GEOS EDD support e-mail (geoseddsupport@epa.gov). The "Basic Electronic Data Deliverable Specification Manual" is available on EPA Region 5's GEOS EDD Support website located at http://www.epa.gov/region5superfund/edman.

The EPA Region 5 EDD is comprised of three sets of files: Initial, Chemistry, and Geology. The Initial EDD Files should be submitted to EPA Region 5 prior to or in conjunction with the first round of sampling and analytical data. The three Initial EDD Files are:

- Data Provider (general information about the Data Provider);
- Sub-facility (general information about the Sub-facility); and
- Location (information regarding the sampling locations).

Note: For the purposes of this manual the term sub-facility shall refer to both Remedial Investigation Areas and Operable Units.

In most cases data submissions will consist of chemistry and groundwater monitoring data. The Chemistry EDD Files contain data related to sample collection information, chemistry field measurements, sample tests and results, groundwater levels, and extraction well information. The six Chemistry EDD Files are:

- Chemistry Sample (information about sample collection);
- Chemistry Test/Result (information on analytical tests and results);
- Chemistry Test Result with QC (information on analytical tests and results along with quality assurance (QA)/quality control (QC) information);
- Batch (test batch information);
- Water Level (information regarding groundwater level measurements); and
- Extraction/Injection Well (information about extraction and/or injection wells).

Of the six files listed above, the files that most data providers will submit will be the Chemistry Sample, Chemistry Test/Result, and Water Level Files. The Test Result with QC and Batch Files will only be submitted in those rare cases where EPA requires QA/QC data in electronic format. The Extraction/Injection Well File will only need to be submitted for sub-facilities with extraction or injection wells.

The Geology EDD Files contain data regarding drilling activities, lithology, geologic sampling, well construction, down-hole point data, and water table levels. The seven Geology EDD Files are:

- Drilling Activity (information about drilling activities);
- Lithology (lithology information);

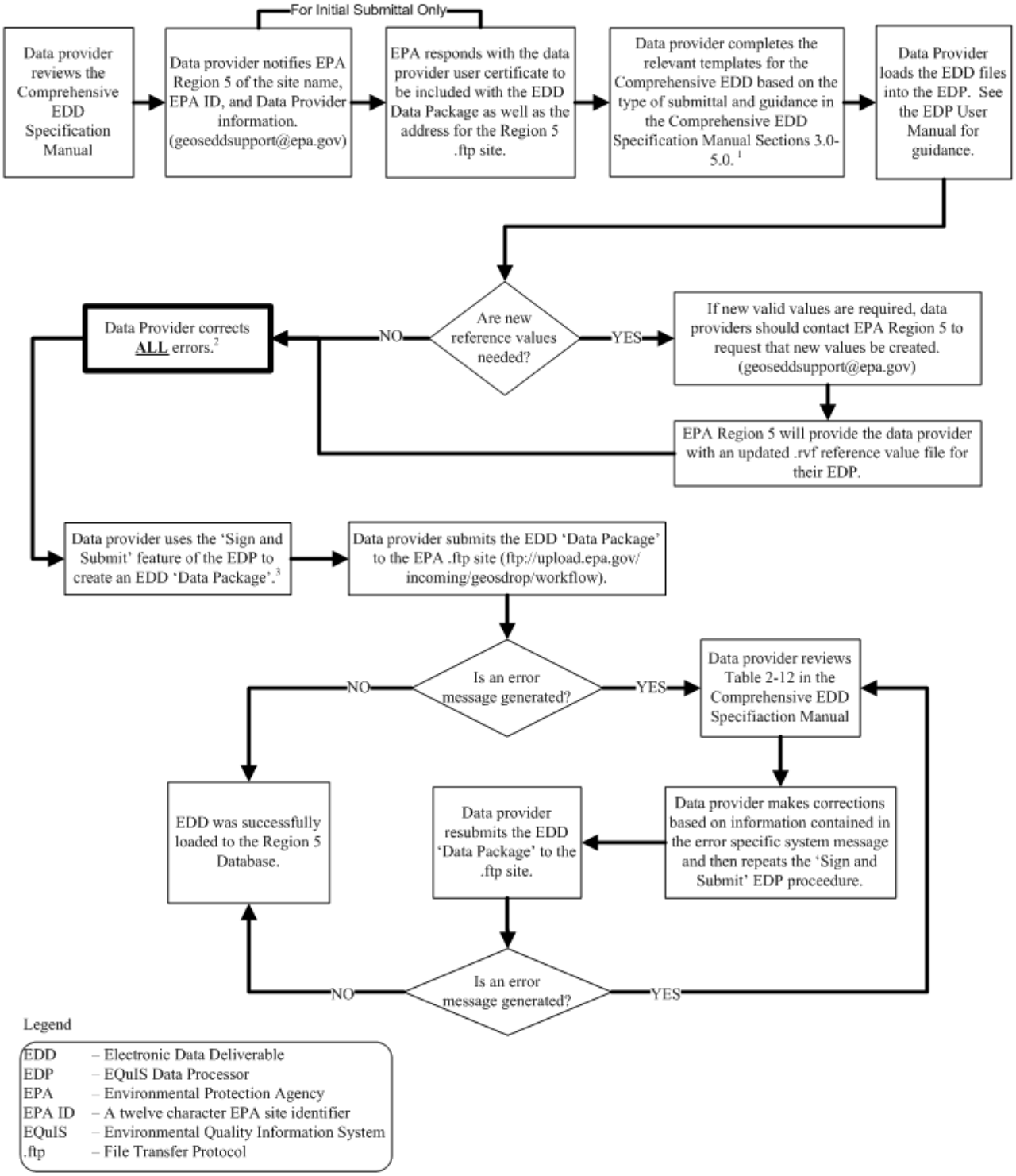
- Well (monitoring well information);
- Well Construction (well construction information);
- Geology Sample (geology sample information);
- Water Table (water table information collected during drilling); and
- Down-Hole Point (down-hole logging information).

The process for creating initial, chemistry, and geology EDDs is shown in Figure 1-1. The process begins by identifying a software tool for editing and formatting data. Many software tools, such as text editors, word processors, spreadsheets, and databases, are capable of creating EDDs, however, because spreadsheets and databases are designed to enter and manage data they are generally preferred for creating EDDs. Microsoft Excel users can find file templates that are already formatted and ready for data entry on EPA Region 5's GEOS EDD support website located at http://www.epa.gov/region5superfund/edman. Users of other spreadsheet or database software can either use these same templates for data entry, after converting the Excel files into another format, or they can define the EDD in their own software. The production of the data tables will normally be a collaborative effort between laboratories and environmental contractors. The laboratories will typically produce the test/results tables while the contractors normally will produce all of the other tables.

Prior to submitting an EDD to EPA Region 5 it is necessary for data providers to load the data files into the Environmental Quality Information System (EQuIS) Data Processor (EDP) software application that is provided on the EPA Region 5 GEOS EDD Support website listed above. This software application will identify any formatting errors in the files that must be corrected prior to submitting the EDD. The EDP replaces the "Electronic Laboratory Data Checker" (ELDC) and the "Electronic Field Data Checker" (EFDC) which were previously used to check the EDD files. For more information regarding the EDP and associated processes, refer to Section 2.4. In addition to using the EDP for identifying errors in the EDD, data providers will now use the 'Sign and Submit' functionality in the EDP to create a 'Data Package' for submission to the EPA Region 5 file transfer protocol (.ftp) site.

Both phone and email support is available for EPA Region 5 data providers requiring assistance with preparing and submitting EDDs. Please see Section 4 of this document for technical support information. Additionally, EPA Region 5's GEOS EDD Support website located at http:/www.epa.gov/region5superfund/edman is also a source of information. Copies of the EPA Region 5 EDD Specification Manual, several EDD fact sheets, the EPA Region 5 list of valid values, spreadsheet templates, and the EarthSoft EDP software application are available for download at the Region 5 GEOS EDD Support website.

Figure 1-1 EDD 'Data Package' Submittal Process Using the Region 5 .ftp Site



[1] Templates for the Comprehensive and Basic EDDs are available on the GEOS EDD Support website (http://www.epa.gov/R5Super/edman/downloads.html).
[2] If errors exist within the EDD Data Package, the entire file will be rejected.
[3] For information on using the EDP to correct errors and create an EDD Data Package, refer to the EDP User Manual.

1.0 INTRODUCTION TO THE EPA REGION 5 ELECTRONIC DATA DELIVERABLE (EDD)

The EPA Region 5 Superfund Division has developed an electronic data process to improve how environmental data from Superfund facilities are acquired and managed. This process will accelerate the review of environmental data submittals, improve service to the data provider community, and enhance the protection of the environment and the public. A vital element in the electronic transfer of environmental data is the submittal of data in a standardized, "user-friendly" format. The specifications and formatting requirements for the EPA Region 5 Comprehensive EDD were developed to facilitate the submittal of data from data providers to the EPA.

The EPA Region 5 Comprehensive EDD is in part based on standard EDDs used in applications developed by EarthSoft, Inc. However, the format is designed to be software-independent and easy to achieve. Any spreadsheet, database, or text editor can be used to create the EDD files however at the time the files are loaded into the EDP, the files must be in a text, Microsoft Excel, or Microsoft Access format.

On its most basic level, the EDD is a series of files that allow data providers to report to EPA Region 5 the individual stages of a chemical or geological sampling event(s) as mandated through an EPA issued enforcement instrument. Multiple files are used to eliminate the need for the reporting of redundant data as would be necessary if all data were contained in one large file. For example, the multiple file format allows for location information for a sampling location to be reported on a one time basis through the Location File. Many years of sampling and result data may then be reported for that location without having to submit the Location File again due to referential integrity standards designed into the EDD template files.

This specification manual includes examples of EDD template files populated with sample data. In addition, several EDD template files are available on the EPA Region 5 GEOS EDD Support website located at http://www.epa.gov/region5superfund/edman. The website also contains a no-cost software program, the EQuIS Data Processor (EDP), which must be used to check EDD files before they are submitted to EPA Region 5. The EDP replaces the two previous Region 5 EDD checker applications, the Electronic Laboratory Data Checker and the Electronic Field Data Checker. The EDP is a single application that checks all EDD files and provides a much easier user interface for identifying and correcting errors.

This EDD Specification Manual discusses EDD submittals in five separate sections:

- General EDD Reporting Requirements;
- General EDD Data Types;
- Specific EDD Data Requirements;
- Types of EDD Submittals; and
- Submitting EDDs to EPA Region 5.

Each file must be reported exactly as defined in these sections. Any deviations will result in loading errors during the blind FTP submission process described in Section 2.5.5

EPA Region 5 expects all fields referred to as 'Required', 'Required PK', and 'If Available' to be filled in. Data fields indicated as "Reserved for future use" should not be reported as these are reserved strictly for EPA Region 5 use.

2.0 EDD DEVELOPMENT AND SUBMITTAL PROCESS

2.1 General EDD Reporting Requirements

2.1.1 File Formats

The maximum length of each text field is indicated in parentheses in the EDD tables shown in Sections 3.0, 4.0, and 5.0. Maximum length requirements imply that the field can be no longer than the specified number of characters. However, it is completely acceptable to fill the field with fewer characters than the maximum number. Each record, which is the term used for each line of information, must be terminated with a carriage return/line feed (created by pressing the "Enter" key in a text editor). Guidance on creating entire files can be found in Section 2.5.1.

2.1.2 File Naming Convention

Each file, within a signed and submitted EDD 'Data Package' (see Section 5.3) must be named according to the following convention:

EPAR5(file prefix)_v2.txt

The file name refers to the EDD file format for the file being submitted and is representative of the type of data included within the file. The "_v2" suffix is an EPA marker to identify which version of the EDD specifications is being followed, and should not be changed by the data provider. Table 2-1 describes the naming formats for the various Initial, Chemistry, and Geology EDD Files.

Table 2-1 EDD File Naming Formats

File Type	File Contents	EDD File Name	Submittal Type
Initial	Data Provider	EPAR5DATAPROVIDER_v2.txt	Initial
Initial	Sub-facility	EPAR5SUBFACILITY_v2.txt	Initial
Initial	Location	EPAR5LOC_v2.txt	Initial
Chemistry	Sample	EPAR5SMP_v2.txt	Recurring
Chemistry	Test/Results	EPAR5TRS_v2.txt	Recurring
Chemistry	Test/Results with QC	EPAR5TRSQC_v2.txt	Recurring
Chemistry	Batch	EPAR5BAT_v2.txt	Recurring
Chemistry	Water Level	EPAR5GWTR_v2.txt	Recurring
Chemistry	Extraction – Injection Well	EPAR5EIW_v2.txt	Recurring
Geology	Drill Activity	EPAR5DRA_v2.txt	Non-Recurring
Geology	Lithology	EPAR5LTH_v2.txt	Non-Recurring
Geology	Well	EPAR5WEL_v2.txt	Non-Recurring
Geology	Well Construction	EPAR5WSG_v2.txt	Non-Recurring
Geology	Geology Samples	EPAR5GSMP_v2.txt	Non-Recurring
Geology	Water Table	EPAR5TBL_v2.txt	Non-Recurring
Geology	Down-Hole Point Data	EPAR5DHP_v2.txt	Non-Recurring

2.1.3 Data Integrity Rules

Data providers are responsible for enforcing three types of integrity checks on their data.

- **Validity:** All codes used in a data set must be valid. Valid values for all coded fields are either provided in the description columns of the tables in Sections 3.0, 4.0, and 5.0 or in the tables in the Appendix of this manual. For example, sample matrix information is inputted in the sample_matrix_code field of the Chemistry Sample File and must be reported using one of the values provided in Table A-1 of the Appendix.

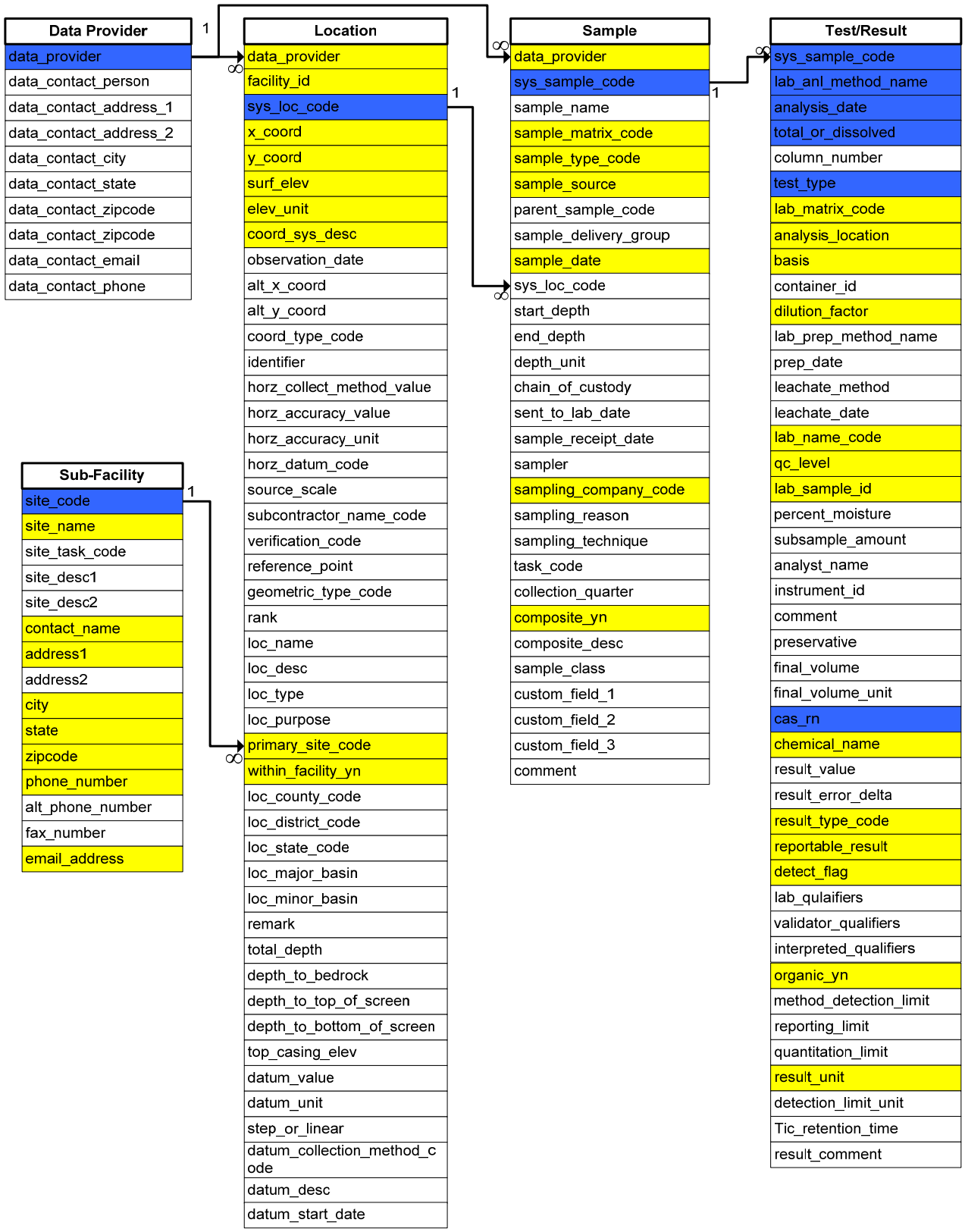
- **Row Uniqueness:** Row uniqueness must be verified using the guidance provided in Tables 2-1, 2-2, and 2-3. Row uniqueness is assured when no two rows in a file contain the same values for all the fields listed under the heading "What makes a row of data unique?". In database terminology this is called a primary key. For example, no two rows in the Chemistry Sample File can contain the same sys_sample_code (commonly called a sample identifier). In addition, no two rows ever reported for a single facility can contain the same sys_sample_code. Each sys_sample_code must be unique for a facility.

  Files that have multiple primary key fields, such as the Basic Location File, must have a different value in at least one of the primary key fields. For instance, no two rows in the Basic Location File can have the same sys_loc_code and measurement_date. As another example, two rows with sys_loc_code of "SB-01" and a measurement_date of "05/02/2000 00:00" would violate row uniqueness. However, row uniqueness would not be violated if one row had a sys_loc_code of "SB-01", and one row had a measurement_date of "05/02/2000 00:00", and the other row had a measurement_date of "06/12/2000 00:00".

- **Row Integrity:** The relationship between rows within the files of the EDD must be assured by enforcing the "referential integrity" rules discussed in Tables 2-1, 2-2, and 2-3 under the column labeled "Dependence of other files on these data." For example, the values in the sys_sample_code field in the Chemistry Test/Result File must match with the corresponding fields in the Chemistry Sample File. Logical relationships between the various Chemistry EDD Files are shown in Figure 2-1. The lines connecting the files show which column(s) (or field(s)) are related in the two files. The file on the side with the "1" at the end of the connecting line contains one row that is related to more than one row in the related file on the other side. For example, one row in a Sub-facility File corresponds to many rows in a Location File because there is always more than one, and in most cases many locations, designated at a facility. The logical relationship between the Geology EDD Files and the Location EDD File is limited to the requirement that all entries in the sys_loc_code fields appear in the Location EDD File.

Figure 2-1 Relationships Between Chemistry EDD Data Structures

Shaded fields are required to have data. Blue fields define row uniqueness for the specified file.

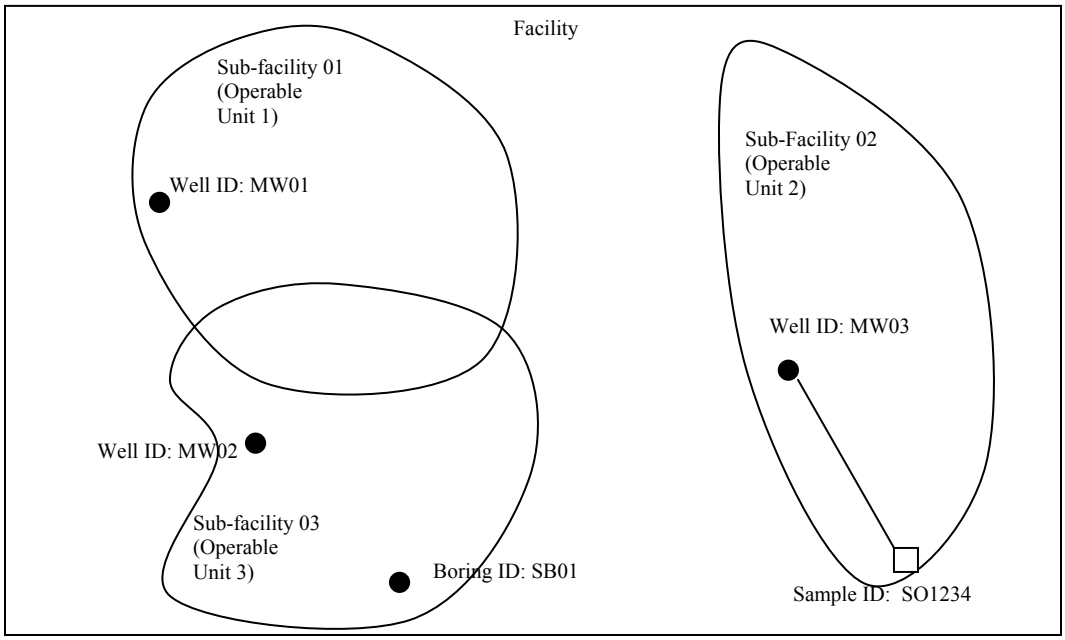


2.2 General EDD Data Types

2.2.1 Definition of a Facility, Sub-facility, and Location

To submit an error-free EDD, it is important to understand how EPA Region 5 defines facility, sub-facility, and location in this EDD Specification Manual. A facility will be generally defined within this manual as the entirety of the area(s) currently under remediation as specified in a Record of Decision (ROD) or under investigation for remediation. Each facility will be identified with its EPA ID number (see Table A-21 of the Appendix) in each EDD submission. The Sub-Facility (subfacility_code) will be the operable unit identifier or other name specifically recognized as being part of a Remedial Investigation. There will always be at least one operable unit per facility. EPA Region 5 defines a location as a distinct point defined by X and Y Universal Transverse Mercator (UTM) coordinates; examples of locations include soil borings, monitoring wells, and sampling locations. Each sub-facility can contain one or more locations, as long as uniqueness is maintained (location identifier (sys_loc_code) must me unique). Figure 2-2 provides a diagram of the facility components.

Figure 2-2 Facility Component Definitions



Facility ID = EPA ID #
Location= sample location, Well ID, Boring ID = sys_loc_code *Must be unique at a Facility*

2.2.2 Valid Values

Valid values, also known as reference values, govern the contents of some fields in the EDDs. In other words, some fields may only be populated with data that matches a value listed in the EPA Region 5 list of valid values. The lists of valid values are provided in the "EPA Region 5 Electronic Data Deliverable Valid Values Appendix" on the Region 5 GEOS EDD website located at http://www.epa.gov/region5superfund/edman. A list of all the data fields that must contain valid values is presented in Table 2-2. This list is also cross-referenced to the EDD file(s) the field appears in. If data providers need to enter a value not already in the Region 5 list in the Appendix, they can request the proposed addition to the valid value list by contacting the Region 5 GEOS EDD Support e-mail address (geoseddsupport@epa.gov). Data providers should reference the value name, the field name in which the new value will be recorded, and a brief description of the meaning of the value. Region 5 will then update the appropriate reference value table and provide the data provider with an updated version of the EDP reference value file. This new reference value file will allow the EDP to then recognize the value as valid. In the case of requesting a new laboratory code, the data provider should include the full name of the laboratory and its address. When requesting an addition of an analyte, the data provider must include the appropriate cas_rn along with a description of the analyte.

Table 2-2 Cross-Reference Between the Valid Value Tables in Appendix and the EDD Files

Valid Value Table Name	Table Number	Field Name	EDD File
Matrix	A-1	sample_matrix_code, lab_matrix_code	Chemistry Sample, Test/Result
Reference Point	A-2	reference_point	Location
Horizontal Collection Method	A-3	horz_collection_method_code	Location
Horizontal Accuracy Unit	A-4	horz_accuracy_unit	Location
Horizontal Datum	A-5	horz_datum_code	Location
Elevation Collection Method	A-6	elev_collect_method_code	Location
Elevation Datum	A-7	elev_datum_code	Location
Source Scale	A-8	source_scale	Location
Location Type	A-9	loc_type	Location
Qualifier	A-10	interpreted_qualifiers	Test/Result
Result Type	A-11	result_type_code	Test/Result
Sample Type	A-12	sample_type_code	Chemistry Sample
Standard Preparation Method	A-13	lab_prep_meth	Test/Result
Analyte	A-14	cas_rn, chemical_name	Test/Result
Lab Analysis Method Name	A-15	lab_anl_method_name	Test/Result
Laboratory	A-16	lab_name_code	Test/Result
Unit	A-17	various_unit fields throughout all files	All Files
Geology Soil Materials	A-18	material_type	Lithology, Geology Sample
Well Segment and Materials	A-19	segment_type, material_type_code	Well Construction
Hydrologic Unit Codes (HUC)	A-20	loc_major_basin	Location
EPA Facility IDs	A-21	facility_id, facility_name	Location

2.2.3 Data Types

The table below describes the data types used in the Chemistry and Geology EDD File descriptions. In addition to the types listed below, certain fields have single and double data types. The single data type stores numbers from -3.402823 x 10^{38} to -1.401298 x 10^{-45} for negative values and from 1.401298 x 10^{45} to 3.402823 x 10^{38} for positive values, with a decimal precision of up to 7 digits. The double data type stores numbers from -1.79769313486231 x 10^{308} to -4.94065645841247 x 10^{-324} for negative values and from 1.79769313486231 x 10^{308} to 4.94065645841247 x 10^{-324} for positive values, with a decimal precision of up to 15 digits.

Table 2-3 Data Type Descriptions

Type	Description	Decimal Precision	Comments
Numeric	Stores numbers from -32,768 to 32,767 (no fractions).	None	
'Y' or 'N'	Boolean field used to indicate yes or no to a question. Enter either Y or N.	NA	
Date/Time	Date format is MM/DD/YYYY followed by a space then Time in 24-hr (military) HH:MM format.	NA	Example: "01/31/2008 18:30"
Text	Stores characters and numbers.	NA	Length restrictions are indicated in parentheses.

2.3 SPECIFIC EDD DATA REQUIREMENTS

2.3.1 Reporting Null Values

When a field is not listed as required in Sections 3.0, 4.0, and 5.0, and the data is not available or applicable, a null or blank may be appropriate. However, tabs or commas must still delimit the blank value. In other words, the number of fields is always the same, whether or not the fields include data. So a blank field in a tab-delimited file would appear as "<TAB><TAB>" and a blank field in a comma-separated file would appear as ",,". Table 2-4 shows a number of examples.

Table 2-4 Examples of How to Report Null Values

Example	Comment
Tab-delimited: "data_one"<tab>"data_two"<tab>"data_three" Comma-separated: "data_one","data_two","data_three"	**O.K.** All fields populated, one tab or comma between fields.
Tab-delimited: "data_one"<tab><tab>"data_three" Comma-separated: "data_one",,"data_three"	**O.K.** Optional field not populated, two tabs or two commas between first and third field.
Tab-delimited: "data_one"<tab>"data_three" Comma-separated: "data_one","data_three"	**Not O.K**. Optional field omitted, only one tab or comma between first and third field.

2.3.2 Reporting Re-Tests

For initial tests, all analytes should be reported. In the case where retests are performed on a sample, the result that is considered the reportable result should indicate a "YES" in the reportable_result field. The initial test, and any retest result not considered reportable will have reportable_result set to "NO". Table 2-5 provides examples of reporting re-tests.

Table 2-5 Example of Reporting Re-Tests

Test Type	Chem Name	Cas_rn	Result Value	Detect Flag	Lab Qualifier	Reportable Result	Result Comment
INITIAL	Benzene	71-43-2	1000	Y	E	NO	too concentrated to quantitate
INITIAL	Toluene	108-88-3	5	N	U	YES	not detected
INITIAL	Xylenes	1330-20-7	5	N	U	YES	not detected
DILUTION1	Benzene	71-43-2	780	Y		YES	quantitated

2.3.3 Reporting Detects and Non-Detects

Non-detects must be reported as shown in the example below. Each non-detect row must show an "N" in the detect_flag field, must have an actual value entered in the reporting_limit and detection_limit_unit fields, and must contain a null in the result_value_field. Table 2-6 presents examples of how to report non-detects.

Table 2-6 Example of Reporting Detects and Non-Detects

Cas_rn	Result Value	Detect Flag	Reporting Detection Limit	Detection Limit Unit	Result Comment	Laboratory Qualifiers
108-88-3	.15	Y	.005	ug/ml		
108-88-3		N	.005	ug/ml	not detected	U

2.3.4 Reporting Tentatively Identified Compounds

Tentatively Identified Compounds (TIC) should be reported when available. The naming of TICs should be applied in a cascade fashion. The TIC should be identified to an analyte name if possible. If this is not possible, then the class of the TIC should be entered. If neither an analyte name nor a class can be identified, the TIC should be identified as Unknown. The EPA Region 5 EDD only allows for reporting up to 10 TICs. Therefore, only the 10 most concentrated or most relevant TICs should be reported. Table 2-7 shows examples of the nomenclature for TICs. As an example, if a sample has three Unknown Hydrocarbons, then the TICs are labeled UnkHydrocarb1, UnkHydrocarb2, and UnkHydrocarb3. TIC names are to be reported in the cas_rn field, Column 28, of the Chemistry Test/Result File (Tables 4-3 and Table 4-4). In addition, the result_type_code, Column 32 in the Chemistry Test/Result File should have "TIC" for all TIC records.

Table 2-7 Example Nomenclature for TIC Reporting

TIC Name	Number for TIC	Reported Name in cas_rn Field
Unknown	1-10	Unknown1 – Unknown10
Unknown Hydrocarbon	1-10	UnkHydrocarb1 - UnkHydrocarb10
Unknown PAHs	1-10	UnkPAH1 - UnkPAH10
Unknown Aromatics	1-10	UnkAromatic1 - UnkAromatic10
Unknown VOA	1-10	UnkVOA1 - UnkVOA10
Unknown SV	1-10	UnkSV1 - UnkSV10

2.4 TYPES OF DATA SUBMITTALS

2.4.1 Initial Data Submittals

The Initial EDD submittal consists of three data files: the Data Provider File, the Sub-Facility File, and the Location File. Initial submittals provide information pertaining to the facility, the facility EDD contact, and sub-facility sampling locations. The Sub-Facility File and Location File generally only need to be submitted once at the beginning of the project. The Data Provider File may be required to be submitted more frequently depending on how often Data Provider contact information changes. These files only need to be resubmitted if any changes occur. Examples of changes that would require resubmittal of the Data Provider, Sub-Facility, and Location Files include changes in Data Provider contact information or location data that has changed subsequent to a resurvey. New sampling locations established after the initial Location File submittal will require the submission of a Location File containing all new location data. Table 2-8 provides general information on the Initial EDD Files. Detailed instructions for creating the Initial EDD Files are provided in Section 3.0. Instructions for submitting your EDDs to EPA Region 5 are presented in Section 2.5.5.

Table 2-8 General Information on the Initial EDD Files

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Data Provider (Section 3.1)	EPAR5DATAPROVIDER_v2.txt (or .csv, .xls, .mdb)	Data provider	One-time reporting of the data provider contact information.	data_provider	The Location and Chemistry Sample Files require the reporting of the data_provider code as described in this file.
Sub-Facility (Section 3.2)	EPAR5SUBFACILITY_v2.txt (or .csv, .xls, .mdb)	Data provider	One-time definition of the Operable Units at a Sub-Facility and Operable Unit contact information.	subfacility_code	The Location File cannot be loaded without properly referenced sub-facilities (subfacility_code).
Location (Section 3.3)	EPAR5LOC_v2.txt (or .csv, .xls, .mdb)	Data provider or Surveyor	One entry for each location at a sub-facility. Contains elevation, coordinate, and general locational data. Data should only be reported once for a location unless the location is resurveyed.	sys_loc_code	Sample, water levels, and extraction well data can only be reported for locations that are defined in this file.

2.4.2 Chemistry Data Submittals

Chemistry EDDs are submitted after each round of sampling and include the following types of files: Chemistry Sample, Chemistry Test/Result, Chemistry Test/Result with QC (if required), Batch (if required), Water Level, and Extraction-Injection Well (if applicable). The Chemistry Test/Result File is a subset of the Chemistry Test/Result with QC File and only one of the two files should be submitted. If the test/result data has accompanying quality control data then the Chemistry Test/Result with QC File should be submitted and not the Chemistry Test/Result (TRS) File. If there is no quality control data accompanying the results, the Chemistry Test/Result File should be submitted and not the Chemistry Test/Result with QC File.

Table 2-9 provides general information on the files that make up the Chemistry EDD. Detailed instructions for creating the Chemistry EDD Files are provided in Section 4, "Formats for Chemistry Files". Instructions for submitting your EDDs to EPA Region 5 are presented in Section 2.5.5.

Table 2-9 General Information on the Chemistry EDD Files

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Chemistry Sample (Section 4.1)	EPAR5SMP_v2.txt (or .csv, .xls, .mdb)	Data provider's field sampling team(s)	One row for each sample collected at the sub-facility.	sys_sample_code	Tests/result and batch data can only be reported for samples that are defined in this file.
Chemistry Test/ Result (Section 4.2.1)	EPAR5TRS_v2.txt (or .csv, .xls, .mdb)	Data provider's testing lab(s)	One row for each analyte reported for a given sample and test. Additional rows can be added to report total and dissolved results and to report results for re-extracts.	sys_sample_code lab_anl_method_name analysis_date total_or_dissolved test_type cas_rn	None.
Chemistry Test/Result with QC (use only if QC data are required) (Section 4.2.2)	EPAR5TRSQC_v2.txt (or .csv, .xls, .mdb)	Data provider's contractor lab(s)	Chemistry Test/Result file with additional fields for QC data.	sys_sample_code lab_anl_method_name analysis_date total_or_dissolved test_type cas_rn	None.
Batch (use only if QC data are required) (Section 4.2.3)	EPAR5BAT_v2.txt (or .csv, .xls, .mdb)	Data provider's contractor lab(s)	Data that relates laboratory quality control samples with field samples that were processed and analyzed together.	sys_sample_code lab_anl_method_name analysis_date total_or_dissolved test_type test_batch_type	None.
Water Level (Section 4.3)	EPAR5GWTR_v2.txt (or .csv, .xls, .mdb)	Data provider's field sampling team(s)	Groundwater level data for monitoring wells.	sys_loc_code measurement_date	None.
Extraction-Injection Well (Section 4.4)	EPAR5EIW_v2.txt (or .csv, .xls, .mdb)	Data provider's field sampling team(s)	Data that relates to any extraction wells that are operating as part of the remedial action.	sys_loc_code start_measurement_date	None.

2.4.3 Geology Data Submittals

Geology EDD submittals contain data obtained during subsurface investigations at the facility. When initially submitting the Geology EDD, all Geology EDD Files for which information is available should be submitted. The Geology EDD Files include the following: Lithology, Drilling Activity, Well Information, Well Construction, Geology Sample, Water Table, and Down-Hole Point Data. Unlike the Chemistry EDD, where submittals are typically submitted on a cyclic basis, in most cases the Geology EDD is submitted only once. Additional Geology EDDs are submitted only if new geology data are collected.

Facilities reporting data from monitoring wells installed or from geology-related activities completed more than one year prior to the date of data submittal are not required to submit the Geology EDD Files – unless the monitoring wells are being used for operation and maintenance (O&M) monitoring. However, for all newly installed

monitoring wells or current geology data collection efforts (i.e., within one year from the date of data submittal), data providers must submit all applicable Geology Files as detailed in Section 5.

Table 2-10 provides general information on the files that make up the Geology EDD. Detailed instructions for creating the Geology EDD Files are provided in Section 5.0. Instructions for submitting your EDDs to EPA Region 5 are presented in Section 2.5.5.

Table 2-10 General Information on the Geology EDD Files

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Drilling Activity (Section 5.1)	EPAR5DRA_v2.txt (or .csv, .xls, .mdb)	Data provider's geologist	General information regarding soil borings.	sys_loc_code event	None.
Lithology (Section 5.2)	EPAR5LTH_v2.txt (or .csv, .xls, .mdb)	Data provider's geologist	Lithology data for a borehole.	sys_loc_code start_depth	None.
Well (Section 5.3)	EPAR5WEL_v2.txt (or .csv, .xls, .mdb)	Data provider's geologist	General information regarding wells.	sys_loc_code	Well construction and water table data can only be reported for wells that are defined in this file.
Well Construction (Section 5.4)	EPAR5WSG_v2.txt (or .csv, .xls, .mdb)	Data provider's geologist	Well construction details recorded during well construction.	sys_loc_code segment_type start_depth material_type_ code	None.
Geology Sample (Section 5.5)	EPAR5GSMP_v2.txt (or .csv, .xls, .mdb)	Data provider's geologist or laboratory	Results for geological, physical properties of samples.	geo_sample_code	None.
Water Table (Section 5.6)	EPAR5TBL_v2.txt (or .csv, .xls, .mdb)	Data provider's geologist	General information pertaining to water table.	sys_loc_code type	None.
Down-Hole Point Data (Section 5.7)	EPAR5DHP_v2.txt (or .csv, .xls, .mdb)	Data provider's geologist	Results of all down-hole logging such as CPT, resistivity, or other geophysical logs.	sys_loc_code depth param	None.

2.5 SUBMITTING EDDS TO EPA REGION 5

2.5.1 Data Entry Tools to Create the EDD Files

Formatted EDD files for the EDP can be produced using any software with the capability to create text files. These files are especially easy to create using spreadsheet or database software packages. However, if these are unavailable, the files can be created using a text editor. Table 2-9 provides instructions for creating EDD files from some widely-used software packages.

Table 2-11 Producing Tab-Delimited Text Files Using Common Software Packages

Package	Type	Instructions
Access	Database	1. Create individual tables for each EDD section using file structures in Section 3.0. 2. After data are entered, close the tables. 3. Once the file is saved it will be possible to load the entire .mdb file into the EDP. Note: The table names should follow the proper naming conventions.
Excel	Spreadsheet	1. Creat the file structures in Section 3 either as individual tabs within a single Excel file or create individual files for each EDD type. 2. Select 'File', 'Save As', from the top menu. Change 'Save as Type' to a 'Text (Tab-Delimited)' file. Press the 'Save' button.

Several files, described below, are included on EPA Region 5's GEOS EDD Support website located at http://www.epa.gov/region5superfund/edman to assist in creating the chemistry and geology EDDs.

Two Microsoft Excel Workbooks files, EPAR5ChemEDD.xls and EPAR5GeoEDD.xls, provide electronic templates for EDD files. Templates for the Initial EDD Files are also included in both these Excel files. To create an EDD, simply enter your data into the worksheets provided and then follow the instructions to load and review an EDD as described in the "EDP Users Manual".

2.5.2 EDD Submittal Types

There are three EDD submittal types: a primary EDD submittal, a correction resubmittal, and an update submittal. These three EDD types are described below.

- **Primary EDD Submittal**: A primary EDD submittal contains data being submitted for the first time to EPA Region 5. When submitting data to the EPA Region 5, the automated system will review and either accept or reject data based on the same set of error criteria referenced by the EDP. The system will generate an automated message depending on the EDDs status. Further information is provided in section 2.5.5.

- **Correction Resubmittal**: In the case where an primary EDD submittal contains errors, the EQuIS 5 system will automatically generate a user notification. Data providers should follow the steps in section 2.5.5 to identify the cause of the rejection and make corrections as necessary. Data providers should then resubmit the data in the same fashion as the primary EDD submittal.

- **Update Submittal**: This type of submittal updates data that has previously been accepted by EPA Region 5. The files of an update submittal should follow the normal naming convention of an EDD submittal and contain only data for the records being updated. For example, a data provider submits an EDD in 2001 that includes a Location File that contains ten locations, and the EDD is accepted by EPA Region 5 and loaded into the EPA database. If, in 2003, the facility is resurveyed, and it is discovered that three of the locations' coordinate information has changed due to increased accuracy, a new Location File containing data for only those three locations would need to be submitted as an update submittal. The update submittal would be named using the current submittal date of the update. **The reason for the update submittal must be conveyed to EPA Region 5 via the GEOS EDD Support e-mail prior to submission (geoseddsupport@epa.gov).**

  Note: *All required fields must be populated for the three locations regardless of whether or not these fields were updated.*

2.5.3 Using the EQuIS Data Processor to Check EDD Formatting

The EQuIS Data Processor (EDP) should be used by data providers to check EDD files prior to submittal to EPA Region 5. The EDP is a no-cost application that performs a series of formatting checks on the files and then identifies any records that have errors along with a description of the errors. This allows the data provider to correct the errors before sending the files to EPA Region 5. EDD files that pass through the EDP error-free should also result in an error-free import into the EPA Region 5 database.

EDP is available as a no-cost download from the EPA Region 5 GEOS EDD Support website located at http://www.epa.gov/region5superfund/edman. Instructions on how to install and use the EDP are also provided on the website.

2.5.4 EDP and the 'Data Package'

After populating the appropriate sections of the EDD, data providers must utilize the EDP software provided on the EPA Region 5 GEOS EDD Support website located at http://www.epa.gov/region5superfund/edman to review data quality and to create the final 'Data Package'. A 'Data Package' is a single .zip file created by the EDP which contains all files that were currently loaded and processed in the EDP as well a unique user certificate that is assigned by Region 5 to data providers.

To obtain a user certificate, users must contact Region 5 through the GEOS support e-mail address (geoseddsupport@epa.gov). In their initial e-mail data providers should include the facility name, EPA ID, and data provider contact information including the e-mail of the individual who will submit all data. Region 5 will then create a data provider profile and the appropriate user certificate will be automatically forwarded to the specified data provider e-mail address. Details on the sign and submit function of the EDP are contained within the "EDP Users Manual", and data providers should refer to this document when creating the final "Data Package".

2.5.5 Submitting Your EDD to EPA

Once your EDD files are compressed using the sign and submit function of the EDP, data providers should copy the 'Data Package' from their local disk and paste the file into the GEOS .ftp blind drop folder located at ftp://upload.epa.gov/incoming/geosdrop/workflow. After posting a 'Data Package' to the .ftp folder, data providers will receive one of several automated systems messages. The various system messages and their interpreted meanings are included in Table 2-12 below. Upon receiving the system message, data providers should review the system message and any system generated attachments to determine the cause of the error (***Note**: If the 'Data Package' is accepted by the system, an acceptance message will be returned and no further action is required by the data provider*). If data providers are unclear regarding the reason for a 'Data Package' rejection they should contact Region 5 (geoseddsupport@epa.gov) to request assistance with error message interpretation.

***Note**: It is essential that the 'Data Package' naming convention include the correct twelve character EPA ID. In an instance where a Data Provider is assigned as a user for multiple facilities, it may be possible for data to be incorrectly submitted and accepted by the database for the wrong facility. If a data provider suspects that they have submitted data to the wrong facility, they should contact Region 5 immediately (geoseddsupport@epa.gov).*

Table 2-12 Automated EQuIS System Messages

Message Name	Subject Line	Body	Remark
Duplicate File	EDD File {FileName} Rejected - Duplicate Submission	Your EDD file '{FileName}' has been rejected because it is a duplicate submission ({DuplicateID}).	This notice is sent to the data provider if the system has accepted an EDD of the same name previously.
Invalid Filename	EDD File {FileName} Rejected - Invalid file name	Your EDD file '{FileName}' has been rejected because it does not match the required package naming conventions.	This notice is sent to the data provider if the EDD was submitted and the EDD file name does not match the file naming convention.
Invalid Facility	EDD File {FileName} Rejected - Facility not found	Your EDD file '{FileName}' has been rejected because the corresponding facility was not found. Please check the specified file naming conventions.	This notice is sent to the data provider if the EDD was submitted to a facility that does not exist or the EDD file name does not match the file naming convention.
Invalid Facility User	EDD File {FileName} Rejected - Not a Valid Data Submitter for Facility	Your EDD file '{FileName}' has been rejected because the user does not have permission to submit data to the corresponding facility. Please contact your system administrator.	This notice is sent to the data provider if the EDD was submitted to a facility that the user does not have permission to submit to.
Valid Package	EDD File {FileName} - User Certificate Authenticated	Your EDD file '{FileName}' has been successfully received and is currently being process. You will receive further notification upon completion.	This notice is sent to the data provider if the EDD is valid (i.e. correct user, facility, filename, etc.). This notice is sent prior to actually processing the data within the EDD.
Empty EDD	EDD File {FileName} Rejected - No Data Found	Your EDD file '{FileName}' has been rejected because no valid data were found. Please make the necessary corrections before resubmitting the EDD.	This notice is sent to the data provider if the EDD is empty or the if EDD files do not match the EDD section names.
EDD Has Errors	EDD File {FileName} Rejected - Data Errors	Your EDD file '{FileName}' has been rejected because of errors found in the data. Please review the attached error report and make the necessary corrections before resubmitting the EDD.	This notice is sent to the data provider if errors are found in the EDD during the automated system processing.
EDD Has Warnings	EDD File {FileName} Rejected - Data Warnings	Your EDD file '{FileName}' contains warnings (as shown in the attached file). However, no errors were found so the EDD will continue to be processed.	This notice is sent to the data provider if warnings (but no errors) are found in the EDD.
EDD Accepted	EDD File {FileName} Accepted	Your EDD file '{FileName}' has been accepted and no errors were found.	This notice is sent to the data provider when an EDD with no errors is accepted and loaded into the database.

2.6 EXAMPLES OF INITIAL, CHEMISTRY, AND GEOLOGY EDD FILES

Figures 2-3 and 2-4 show examples of EDD files with the first few rows of the EDD populated. These examples were produced using Excel worksheets. To submit these files, the data provider would check the files using the EDP (see section 2.5.3), and then follow the process for creating and submitting the "Data Package" as described in section 2.5.6. In order to fit the examples on one page, not all of the fields (i.e., columns) were included for certain files (e.g., Sub-facility, Basic Location, Basic Sample/Test/Result). The notation "*Additional Fields"* has been inserted where, for purposes of these examples, one or more fields have been omitted. It should be noted that all fields must appear in the EDD files you submit regardless of whether or not the field is populated (see Section 2.3.1 regarding reporting blanks, or "null" values).

Figure 2-3 Example of Initial EDD Files

Data Provider File:

data_provider	data_contact_ person	data_contact_ address1	data_contact_ address2	data_contact_ city	data_contact_state	data_contact_zipc ode	data_contact_email	data_contact_ phone
RFW	John Smith	77 W. Jackson		Chicago	IL	60601	John Smith@abd.com	312-555-0213

Sub-Facility File:

subfacility_ code	subfacility_ name	subfacility_task_ code	subfacility_desc1	subfacility_desc2	contact_name	address1	*Additional Fields*	email_address
01	Example Operable Unit		Ground Water Operable Unit		John Smith	23 Main Street		abc@abd.com

Location File:

data_provider	facility_id	sys_loc_ code	x-coord	y-coord	surf_elev	elev_unit	coord_sys_desc	observation_date	alt_x_coord
RFW	ABC000115423	MW01	414456.78	4424543.21	120.2	ft	UTM Zone 17	02/21/1999 00:00	-82.00231
RFW	ABC000115423	SB-01	414709.23	4424304.12	126.3	ft	UTM Zone 17	02/23/1999 00:00	-82.00531
RFW	ABC000115423	MW03	414601.23	4424700.33	130.1	ft	UTM Zone 17	02/22/1999 00:00	-82.01023
RFW	ABC000115423	MW04	414601.23	4424700.33	130.1	ft	UTM Zone 17	02/22/1999 00:00	-82.01023

Location File (Continued):

alt_y_coord	coord_type- code	identifier	*Additional Fields*	comment
39.9612	Lat Long	1		
39.35794	Lat Long	1		
39.9701	Lat Long	1		
39.9701	Lat Long	1		

Figure 2-4 Example of Chemistry EDD Files

Sample File:

sys_sample_code	sample_ name	sample_ matrix_code	sample_type_ code	sample_ source	parent_sample_code	sample_delivery_ group	sample_ date	sys_loc_code	*Additional Fields*	comment
MW01040198		WG	N	Field			04/01/2008 00:00	MW01		
MW02040198		WG	N	Field			04/01/2008 00:00	MW02		

Chemistry Test/Result File:

sys_sample_ code	lab_anl_ method_ name	anlaysis_d ate	total_or_ dissolved	column_ number	test_ type	lab_matrix _code	analysis_ location	basis	container_ id	dilution_ factor	*Additional Fields*	lab_ name_ code	qc_ level	*Additional Fields*
MW02040198	SW8240	5/01/2008 00:00	T		INITIAL	WG	LB	Wet		1.0		DER	quant	
MW02040198	SW8240	5/01/2008 00:00	T		INITIAL	WG	LB	Wet		1.0		DER	quant	
MW02040198	SW8240	5/01/2008 00:00	T		REANAL YSIS	WG	LB	Wet		10.0		DER	quant	

Chemistry Test/Result File (continued):

cas_rn	chemical_ name	result_ value	result_ error_ delta	result_ type_ code	reportable _result	detect_flag	lab_ qualifiers	validator _qualifier s	interpret ed_ qualifier	*Additional Fields*	result_ units	detection _limit_ unit	*Additional Fields*	result_ comment
71-43-2	BENZENE	12		TRG	YES	Y					ug/ml	ug/ml		
108-88-3	TOLUENE			TRG	YES	N					ug/ml	ug/ml		
1330-20-7	XYLENES			TRG	YES	N					ug/ml	ug/ml		

Water Level File:

sys_loc_code	measurement_ _date	historical_ref_elev	water_level_depth	water_level_elev	corrected_depth	*Additional Fields*	task_code
MW01	05/10/2008 13:10		31.1	89.1			
MW02	05/10/2008 13:45		34.1	89.0			

Extraction – Injection Well File:

sys_loc _code	start_ measurement_ _date	end_measure_ _date	avg_pump_rate	pump_rate_unit	*Additional Fields*	remark
EX-01	05/12/2008 11:23	06/12/2008 11:30	2.5	mgd		
EX-02	11/12/2008 12:00	12/12/2008 13:10	1.75	mgd		

Figure 2-5 Examples of QC Data Fields in a Chemistry EDD Files

QC fields in a normal field sample (i.e., sample_type_code = N, TB, etc.)

The following table shows some of the fields in the Chemistry Test/Result File for a normal field sample. Notice that all QC fields are blank.

cas_rn	result_value	qc_original _conc	qc_spike_ added	qc_spike_ measured	Qc_spike_ recovery	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5	1.56								
94-75-7	3.17								
94-82-6	2.31								

QC fields in a normal field sample with surrogates (i.e., sample_type_code = N, TB, etc. and result_type_code = SUR)

The following table shows some of the fields in the Chemistry Test/Result File for a normal field sample. Notice that QC fields are blank except in rows related to surrogate samples. Many data providers will only need to populate the recovery field data; the spike-added and spike-measured fields will not be needed in most situations.

cas_rn	result_value	result_unit	result_type_ code	qc_original_ conc	qc_spike_added	qc_spike_ measured	qc_spike_ recovery
93-76-5	1.56	mg/l	TRG				
94-75-7	3.17	mg/l	TRG				
PHEN2F		mg/l	SUR		12.5	12.9	103

QC fields in a laboratory method blank sample (i.e., sample_type_code = LB)

The following table shows some of the fields in the Chemistry Test/Result File for a laboratory method blank sample. Notice that all QC fields are blank.

cas_rn	result_ value	lab_ qualifier	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5		U								
94-75-7		U								
94-82-6	0.01									

Figure 2-5 Examples of QC Data Fields in a Chemistry EDD Files (continued)

QC fields in a matrix spike (i.e., sample_type_code = MS*)*
The following table shows some of the fields in the Chemistry Test/Result File for a matrix spike sample. Notice that all "dup" QC fields are blank and that the result_value and qc_rpd fields are not needed. Many data providers will only need to populate the calculated recovery field (qc_spike_recovery).

cas_rn	result_ value	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_rpd	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5		1.56	4.18	5.36	90.9					
94-75-7		3.17	4.18	7.15	95.2					
94-82-6		2.31	4.22	5.66	79.3					

QC fields in a matrix spike duplicate (i.e., sample_type_code = SD*)*
The following table shows some of the fields in the Chemistry Test/Result File for a matrix spike duplicate sample. Notice that all "dup" QC fields are filled in and that the result_value field is not needed. The qc_rpd field would be populated for these rows. Many data providers will only need to populate the calculated recovery field (qc_dup_spike_recovery).

cas_rn	result_ value	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_rpd	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5						10	1.56	4.23	5.70	97.8
94-75-7						12	3.17	4.23	7.62	105
94-82-6						15	2.31	4.13	5.33	73.1

QC fields in a matrix spike/matrix spike duplicate (i.e., sample_type_code = MSD)
The following table shows some of the fields in the Chemistry Test/Result File for a matrix spike/matrix spike duplicate considered as a single sample. *(**Note**: Matrix spike and matrix spike duplicate samples can be reported either this way or as two separate samples as shown above)*. Notice that all QC fields are filled in and the result_value field is not needed. Many data providers will only need to populate the calculated recovery fields (qc_spike_recovery and qc_dup_spike_recovery).

cas_rn	result_ value	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_rpd	qc_dup_ original_ conc	qc_dup spike_ added	qc_dup spike_ measured	qc_dup spike_ recovery
93-76-5		1.56	4.18	5.36	90.9	7	1.56	4.23	5.70	97.8
94-75-7		3.17	4.18	7.15	95.2	10	3.17	4.23	7.62	105
94-82-6		2.31	4.22	5.66	79.3	8	2.31	4.13	5.33	73.1

QC fields in a LCS (i.e., laboratory control sample, blank spike, sample_type_code = BS)

The following table shows some of the fields in the Chemistry Test/Result File for an LCS sample. Many data providers will only need to populate the calculated recovery field (qc_spike_recovery). LCS duplicate samples (i.e., sample_type_code = BD) and LCS/LCSD samples (i.e., sample_type_code = BSD) follow the patterns similar to the SD and MSD samples described above.

cas_rn	result _value	qc_original _conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5			5.00	5.26	105				
94-75-7			1.00	1.02	102				
94-82-6			12.5	12.9	103				

Figure 2-6 Example of Geology EDD Files

Drill Activity File:

sys_loc_code	drill_event	start_depth	end_depth	drill_date	diameter	*Additional Fields*	purpose
W-4A	1a	40	80	07/12/1999	8		Advanced well additional 40 feet to reach lower aquifer
W-6B	2c	45	110	07/14/1999	8		Advanced well 55 feet to reach bedrock

Lithology File:

sys_loc_ code	start_ depth	material_ type	geo_unit_1	*Additional Fields*	remark_1	*Additional Fields*	odor
W-1A	0	CL	Glacial		grayish brown clay, trace fine sand, med strength, med plastic, rapid dilatancy ,some brick fragments		
W-1A	10	SW	Outwash		med dense, 50% fine to coarse brown sand, 30% gravel, dry, trace clay		
W-1A	23	SP	Outwash		dense, 70% coarse brown sand, 20% gravel, poorly graded, rounded, moist		
W-2A	0	ML	Alluvial		Dark brown silt with little fine sand, low strength, nonplastic, rapid dilatancy		

Well File:

sys_loc_code	*Additional Fields*	top_casing_elev	datum_value	datum_unit	datum_desc	*Additional Fields*	geologic_unit_ code	remark
W-1A		122.0	122.0	ft	top of casing of well		outwash	
W-2A		122.3	122.3	ft	top of casing of well		alluvial	

Figure 2-6 Example of Geology EDD Files (continued)

Well Construction File

sys_loc_code	segment_type	material_type_code	start_depth	end_depth	depth_unit	inner_diameter	*Additional Fields*	remark
W-1A	surface plug	Concrete	0	1.5	ft	4.5		
W-1A	annular backfill	neat cement grout	1.5	8	ft	2.375		
W-1A	annular Seal	Bentonite pellets	8	8	ft	2.375		
W-1A	Filter Pack	sand pack	8	23.1	ft	2.375		
W-1A	Protective Casing	Steel	-2.2	3.2	ft	4		
W-1A	casing	stainless steel 304	-2.1	24	ft	2		
W-1A	screen	stainless steel 304	24	29	ft	2		
W-2A	protective casing	Steel	-2.0	3.0	ft	2		
W-2A	surface plug	concrete	0	1.5	ft	4.5		
W-2A	annular backfill	neat cement grout	1.5	10	ft	2.375		

Geology Sample File:

sys_loc_code	geo_sample_code	sample_name	sample_top	sample_bottom	sample_date	sample_method	material_type	*Additional Fields*	organic_carbon_unit
W-1A	ABCD-1		4	6	04/23/1999	split spoon	SW		
W-1A	ABCD-2		14	16	04/23/1999	split spoon	SW		
W-2A	DEFG-1		5	7	04/24/1999	split spoon	SP		

Figure 2-6 Example of Geology EDD Files Ready for Conversion to Text Files (continued)

Water Table File:

sys_loc_code	type	sequence	depth	flowing_yn	measurement_method	capped_pressure	capped_pressure_unit	*Additional Fields*	temperature_unit
MW01	Unconfined	stable	21.2	y	electric sensor				
MW02	Unconfined	stable	21.0	y	electric sensor				

Geology Down-Hole Point File:

sys_loc_code	depth	param	param_value	param_unit
MW01	10.8	Tip Stress	612	lb/in2
MW01	11.2	Tip Stress	624	lb/in2
MW01	10.8	Sleeve Stress	6.1	lb/in2
MW01	11.2	Sleeve stress	5.8	lb/in2
MW02	9.5	Resistivity	510	lb/in2
MW02	10.1	Resistivity	521	lb/in2
MW02	11.0	Resistivity	489	lb/in2

3.0 FORMATS FOR INITIAL EDD FILES

This section contains tables that define the file structures for the Initial EDD sections. The file structures are included for the following sections: Data Provider, Sub-Facility, and Location. Please notice that some columns are labeled as "Reserved for future use". These columns should simply be reported as null values and are only needed to comply with standard reporting formats. Columns marked "Required" must be reported for each row in the file. Columns marked "Required PK" are required fields as well as primary keys that help to define row uniqueness. If an EDD is submitted with one or more "Required" fields not filled in, the EDD will not be able to load into the database, and the EDD will require further data provider correction(s). Columns marked "If available" must be reported if the information is available.

***Note**: "If Available" fields may be required depending on data populated in the other fields.*

3.1 DATA PROVIDER FILE

The Data Provider File is used by Region 5 to define the entity responsible for the reporting of data. This file should be submitted along with the other Initial EDD Files. Information that is populated in this file should be specific to the Data Provider and not to the facility for which the data is being submitted. If at any time the Data Provider information changes, a new Data Provider File must be submitted to accurately reflect the current chain of responsibility for the data.

Each Data Provider File must be named according to the following convention:

EPAR5DATAPROVIDER_v2.txt (or .csv, .xls, .mdb)

Table 3-1 Data Provider File Structure

Column #	Column Name	Data Type	Required	Description
1	data_provider	Text(20)	Required PK	Unique code representing the name of company or agency responsible for completion and submittal of any part of this EDD. See Appendix section A-16 for a complete list of valid company codes. To request the creation of a company code follow the instructions for requesting a new valid value in section 2.2.2.
2	data_contact_person	Text(30)	If Available	Name of the primary point of contact associated with the Data Provider. If not available, report as null.
3	data_contact_ address1	Text(40)	If Available	Data Provider contact street address and/or box number. If not available, report as null.
4	data_contact_ address2	Text(40)	If Available	Data Provider contact address, part two. Box number or other info. If not available, report as null.
5	data_contact_city	Text(30)	If Available	Data Provider contact City. If not available, report as null.
6	data_contact_state	Text(5)	If Available	Data Provider contact state postal abbreviation. If not available, report as null.
7	data_contact_ zipcode	Text(10)	If Available	Data Provider contact zip code. If not available, report as null.
8	data_contact_email	Text(60)	If Available	Data Provider contact e-mail address. If not available, report as null.
9	data_contact_phone	Text(30)	If Available	Data Provider contact phone number. If not available, report as null.

3.2 SUB-FACILITY FILE

The Sub-Facility File provides general information about an Operable Unit(s) or Remedial Investigation area (generally referred to here as the "Sub-Facility") and provides the name, e-mail address, and other contact information for the individual or group responsible for the reported Operable Unit or Remedial Investigation area. The Sub-Facility File is a required part of any initial EDD submittal. An example of a Sub-Facility File is provided in Figure 2-3, Section 2.6

***Note**: If the Sub-Facility File was previously submitted, including as part of an EDD submitted as described in the Region 5 "Basic Electronic Data Deliverable Specification Manual", you DO NOT need to resubmit the file again unless contact information has significantly changed.*

Each Sub-Facility File must be named according to the following convention:

EPAR5SUBFACILITY_v2.txt (or .csv, .xls, .mdb)

Table 3-2 Sub-Facility File Data Structure

Column #	Column Name	Data Type	Required	Description
1	subfacility_code	Text(3)	Required PK	Unique code indicating the sub-facility Operable Unit for which the data is collected. Typically the code is "01" unless there is a second or third operable unit at the facility. Codes of "02" and "03" should be used for second and third operable units, respectively. For Remedial Investigation areas begin numbering with "01". Contact the EPA RPM if unsure of proper code.
2	subfacility_name	Text(60)	Required	Name of the sub-facility area for which data is being reported.
3	subfacility_task_ code	Text(8)	If Available	Code used to identify the task under which the sub-facility is investigated. This field is for informational purposes only. Field samples are formally associated with task codes. If not available, report as null.
4	subfacility_desc1	Text(255)	If Available	General description of the sub-facility. If not available, report as null.
5	subfacility_desc2	Text(255)	If Available	Additional description of sub-facility, if necessary. If not available, report as null.
6	contact_name	Text(50)	Required	Name of person to contact regarding general sub-facility information (May be the same as the Data Provider).
7	address1	Text(40)	Required	Sub-facility address, part one.
8	address2	Text(40)	If Available	Sub-facility address, part two. If not available, report as null.
9	city	Text(30)	Required	Sub-facility city (May be the same as the Data Provider).
10	state	Text(2)	Required	Sub-facility state (May be the same as the Data Provider).
11	zipcode	Text(10)	Required	Sub-facility zip code (May be the same as the Data Provider).
12	phone_number	Text(30)	Required	Sub-facility contact phone number (May be the same as the Data Provider).

Table 3-2 Sub-Facility File Data Structure

Column #	Column Name	Data Type	Required	Description
13	alt_phone_number	Text(30)	If Available	Alternate phone number for sub-facility contact. If not available, report as null.
14	fax_number	Text(30)	If Available	Fax number of sub-facility contact. If not available, report as null.
15	email_address	Text(100)	Required	Sub-facility contact e-mail address (May be the same as the Data Provider).

3.3 LOCATION FILE

The primary purpose of the Location File is to define the sampling locations for a sub-facility. This file is referred to as one of the Initial EDD Files because it must be submitted and **error-free** before EDD files that contain chemistry and geology data can be used. Each row of the Location File contains the definition of a unique sampling location. Do not create any records (i.e., rows) for any samples not associated with a specific sampling location, such as field blanks and trip blanks. In the case of multiple wells located in one borehole, each well in the borehole must have a unique sampling location identifier (sys_loc_code).

Each sampling location should only be reported once for a sub-facility. The only time data for a previously reported location should be resubmitted is if some information about the location changes, such as when a location is resurveyed after settling has occurred or after a resurvey using an instrument or methodology with higher accuracy. When resubmitting changes to the Location File, the file should only contain rows pertaining to the affected locations. As in a typical EDD submittal, all "required" fields should be populated when updating data. See section 2.4 for more information regarding submitting updated data files.

The data structure of the Location File includes fields (Columns 8 through 21 in Table 3-3) to record data required by EPA's Locational Data Policy (LDP). LDP requires geographic coordinates and associated method, accuracy, and description (MAD) codes for all environmental measurements collected by EPA employees, contractors, and grantees. A key premise of the LDP policy is that secondary use of these data in geographic information systems (GIS) and statistical mapping programs are significant to the overall mission of the Agency. To facilitate the integration of data, EPA has established the LDP to standardize the coding of geologic coordinates and associated attributes. Therefore, in addition to location coordinates being reported in UTM meters, Region 5 requests that coordinates be reported in latitude and longitude, along with associated attributes, if the data is available. An example of a Location File is provided in Figure 2-3, Section 2.6.

Each Location File must be named according to the following convention:

EPAR5LOC_v2.txt (or .csv, .xls, .mdb)

Table 3-3 Location File Data Structure

Column #	Column Name	Data Type	Required	Description
1	data_provider	Text(20)	Required	Data Provider code corresponding to the code entered in the Data Provider File. See Table 3-1, Column 1.
2	facility_id	Text(20)	Required	Twelve character EPA ID code which designates the appropriate facility. See Appendix Table A-21 for a list of valid values.

Table 3-3 Location File Data Structure

Column #	Column Name	Data Type	Required	Description
3	sys_loc_code	Text(20)	Required PK	Location ID, such as MW-01, A24, SW12, or SB-2S, for all samples collected, including groundwater samples, hydropunch samples, surface water/sediment samples, and soil samples.
4	x_coord	Numeric	Required	Sampling location numeric x coordinate in UTM NAD83 meters coordinate system.
5	y_coord	Numeric	Required	Sampling location numeric y coordinate in UTM NAD83 meters coordinate system.
6	surf_elev	Numeric	Required	Elevation of the ground surface, or if location is for surface water samples, water surface elevation. For water surface elevation, use the average annual elevation. ***Note**: Subsequent water surface elevations should be obtained during the surface water sampling period and reported in the Water Level File (see sections 4.2 and 4.4).*
7	elev_unit	Text(15)	Required	Unit of measurement for elevations. ***Note**: At this time, units must be feet (ft).*
8	coord_sys_desc	Text(20)	Required	Sampling location coordinate system description. Must be UTM followed by appropriate zone number, e.g., UTM zone 16.
9	observation_date	Date/Time	If Available	Date observation or sub-facility survey was made. If not available, report as null.
10	alt_x_coord	Text(20)	If Available	Latitude of sampling location in decimal degrees. If not available, report as null.
11	alt_y_coord	Text(20)	If Available	Longitude of sampling location in decimal degrees. If not available, report as null.
12	coord_type_code	Text(8)	If Available	Code for the coordinate type used for alt_x and alt_y. In all cases this will be "Lat Long." If not available, report as null.
13	identifier	Text(20)	Reserved for future use	This field is only to be used by EPA Region 5 personnel. Please leave blank.
14	horz_collect_method_code	Text(2)	If Available	Method used to determine the latitude/longitude. Use codes in Appendix Table A-3, Horizontal Collection Method. If not available, report as null.
15	horz_accuracy_value	Text(20)	If Available	Accuracy range (+/-) of the latitude and longitude. Only the least accurate measurement should be reported, regardless if it is for latitude or longitude. If not available, report as null.
16	horz_accuracy_unit	Text(1)	If Available	Unit of the horizontal accuracy value. Use values in Table A-4 of the Appendix. If not available, report as null.

Table 3-3 Location File Data Structure

Column #	Column Name	Data Type	Required	Description
17	horz_datum_code	Text(1)	If Available	Reference datum of the latitude and longitude. Use codes in Table A-5 of the Appendix. If not available, report as null.
18	elev_collect_method_code	Text(2)	If Available	Method used to determine the elevation of the sampling location. Use codes in Table A-6 of the Appendix. If not available, report as null.
19	elev_accuracy_value	Text(20)	If Available	Accuracy range (+/-) of the elevation measurement. If not available, report as null.
20	elev_accuracy_unit	Text(8)	If Available	Unit of the elevation accuracy value. Use values in Table A-17 of the Appendix. If not available, report as null.
21	elev_datum_code	Text(1)	If Available	Reference datum for the elevation measurement. Use values from Table A-7 of the Appendix. If not available, report as null.
22	source_scale	Text(2)	If Available	Scale of source used to determine the latitude and longitude. Use codes from Table A-8 of the Appendix. If GPS is used, this field does not apply and "N" should be entered. If not available, report as null.
23	subcontractor_name_code	Text(20)	If Available	Code used to distinguish subcontractor name. If not available, report as null.
24	verification_code	Text(1)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
25	reference_point	Text(2)	If Available	Describes the place at which coordinates were established. Use codes from Table A-2 in the Appendix. If not available, report as null.
26	geometric_type_code	Text(20)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
27	rank	Numeric	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
28	loc_name	Text(40)	If Available	Sampling location name. If not available, report as null.
29	loc_desc	Text(255)	If Available	Sampling location description. If not available, report as null.
30	loc_type	Text(10)	If Available	Description of sampling type, such as direct push, extraction well, or sediment. Use codes in Table A-9 of the Appendix. If not available, report as null.
31	loc_purpose	Text(20)	If Available	Sampling location purpose. If not available, report as null.
32	primary_sub-facility_code	Text(3)	Required	Unique sub-facility code corresponding to the code entered in the Sub-facility File. See Table 3-2, Column 1.

Table 3-3 Location File Data Structure

Column #	Column Name	Data Type	Required	Description
33	within_facility_yn	Text(1)	Required	Indicates whether this sampling location is within facility boundaries, "Y" for yes or "N" for no.
34	loc_county_code	Text(20)	If Available	Location county code using Federal Information Processing Standard (FIPS) codes. FIPS codes can be found via the internet at http://www.oseda.missouri.edu/plue/geocorr/htmls/counties.html and http://www.itl.nist.gov/fipspubs/co-codes/states.htm. If not available, report as null.
35	loc_district_code	Text(20)	If Available	Location district code using FIPS codes. If not available, report as null.
36	loc_state_code	Text(10)	If Available	Location state abbreviation. User select drop down list.
37	loc_major_basin	Text(8)	If Available	Location major basin using hydrologic unit codes (HUC). Use values in Table A-20 of the Appendix. If not available, report as null.
38	loc_minor_basin	Text(20)	If Available	Location minor basin using HUC codes. Any digits after the 8th (first 8 are reported in loc_major_basin) should be reported here. If not available, report as null.
39	remark	Text(255)	If Available	Location specific comment. If not available, report as null.
40	total_depth	Numeric	If Available	Total depth below ground surface of boring, in feet. If not available, report as null.
41	depth_to_bedrock	Numeric	If Available	Depth below ground surface of bedrock in feet. If not available, report as null.
42	depth_to top_of_screen	Numeric	Required*	Depth in feet below ground surface to the top of the well screen. This information is required to obtain the vertical location from which the groundwater sample was taken. **Note: Required if location is a well. Report as null if well is not at this location.*
43	depth_to_bottom_of_screen	Numeric	Required*	Depth in feet below ground surface to bottom of well screen. This information is required to obtain the vertical location from which the groundwater sample was taken. **Note: Required if location is a well. Report as null if well is not at this location.*
44	top_casing_elev	Numeric	Required*	Elevation of the top of casing in feet. **Note: Required if location is a well. Report as null if well is not at this location.*

Table 3-3 Location File Data Structure

Column #	Column Name	Data Type	Required	Description
45	datum_value	Numeric	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
46	datum_unit	Text(15)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
47	step_or_linear	Text(6)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
48	datum_collect_method_ code	Text(2)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
49	datum_desc	Text(70)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
50	datum_start_date	Date	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.

4.0 FORMATS FOR CHEMISTRY FILES

This section contains tables that define the file structures for the Chemistry EDD. The file structures are included for the following sections: Chemistry Sample, Chemistry Test/Results, Chemistry Test/Results with QC, Chemistry Batch, Water Level, and Extraction Well. Please notice that some columns are labeled as "Reserved for future use". These columns should simply be reported as null values and are only needed to comply with standard reporting formats. Columns marked "Required" must be reported for each row in the file. Columns marked "Required PK" are required fields as well as primary keys that help to define row uniqueness. If an EDD is submitted with one or more "Required" fields not filled in, the EDD will not be able to load into the database, and the EDD will require further data provider correction(s). Columns marked "If available" must be reported if the information is available.

Note: "If Available" fields may be required depending on data populated in other fields.

The Chemistry Test/Result File is a subset of the Chemistry Test/Result with QC File and only one of the two files should be submitted. If the test/result data has accompanying quality control data then the Chemistry Test/Result with QC File should be submitted and not the Chemistry Test/Result File. If there is no quality control data accompanying the data, the Chemistry Test/Result File should be submitted and not the Chemistry Test/Result with QC File.

4.1 CHEMISTRY SAMPLE FILE

The Chemistry Sample File contains data for samples collected at a sub-facility and location. The unique identifier for each sample is recorded in the sys_sample_code. For trip blank samples, please record the sys_sample_code as "TB" plus the date on which the sample was collected in MMDDYY format. For example a trip blank collected on April 5, 2008 would have a sys_sample_code of TB040508. A sys_sample_code of "Trip Blank" is unacceptable because it cannot be distinguished from another trip blank labeled the same way*. For samples that are not associated with a specific sampling location, such as trip blanks or field blanks, leave the sys_loc_code column (Column 10) null. For surface water samples, record the sample depths, start_depth (Column 11) and end_depth (Column 12), as depth below the water surface elevation. The water surface elevation at the time of the sampling should be recorded in the Water Level File (see Section 4.4). An example of a Chemistry Sample File is provided in Figure 2-4, Section 2.6.

**Note: If data providers feel that cross contamination has occurred, as evidenced by the detection of analytes in the trip blank samples, then data providers must complete the "Batch Partner" spreadsheet located on in the downloads section of the GEOS EDD Support website (http://www.epa.gov/region5superfund/edman) and e-mail it to the GEOS Support e-mail (geoseddsupport@epa.gov).*

Each Chemistry Sample File must be named according to the following convention:

EPAR5SMP_v2.txt (or .csv, .xls, .mdb)

Table 4-1 Chemistry Sample File Data Structure

Column #	Column Name	Data Type	Required	Description
1	data_provider	Text(20)	Required	Data Provider code corresponding to the code entered in the Data Provider File. See Table 3-1, Column 1.

Table 4-1 Chemistry Sample File Data Structure

Column #	Column Name	Data Type	Required	Description
2	sys_sample_code	Text(40)	Required PK	Unique sample identifier. Each sample at a facility, including spikes and duplicates, must have a unique value. There is considerable flexibility in the methods used to derive and assign unique sample identifiers and Data Providers should report in the fashion to which they are accustomed; however, uniqueness throughout the Chemistry Sample File is required. Note: Sample identifiers must be unique with relation to **EVERY** sample identifier that has been submitted in every EDD to date.
3	sample_name	Text(30)	If Available	Additional sample identification information as necessary. Data in this field is not required to be unique (i.e., duplicates are acceptable). The sample name can be the same value as in the sys_sample_code field. If not available, report as null.
4	sample_matrix_code	Text(3)	Required	Code that identifies the matrix being sampled, such as soil, groundwater, or sediment. Use values in Table A-1 of the Appendix.
5	sample_type_code	Text(3)	Required	Code that distinguishes between different types of samples, such as normal field samples versus laboratory method blank samples. Use values in Table A-12 in the Appendix.
6	sample_source	Text(10)	Required	Identifies where the sample originated. Use either "FIELD" or "LAB". Use "FIELD" for all samples originating from the field and use "LAB" if sample originated from the laboratory.
7	parent_sample_code	Text(40)	Required for field duplicate samples	Unique identifier of the original sample from which the current sample was derived, i.e. the "parent" sample. Required for samples with a sample_type_code of "BD", "FD", "FR", "FS", "LR", "MS", "MSD" or "SD".
8	sample_delivery_ group	Text(10)	If Available	EPA and most EPA Region 5 data providers are accustomed to using the Contract Laboratory Program (CLP) document definition of the sample delivery group (SDG). However, the CLP definition of an SDG relates to a lab payment group which is not what is being asked for in this field. For the purposes of this field in this EDD, the value entered should correspond more to the "sampling event/ matrix" with which the sample is associated. For example, the SDG for ground water samples should be different from that for surface water samples. This will prevent flags associated with surface water matrix effects from being propagated to ground water results. If not available, report as null.

Table 4-1 Chemistry Sample File Data Structure

Column #	Column Name	Data Type	Required	Description
9	sample_date	Date/Time	Required	Date and time sampling was collected in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format; report as 00:00 if time is unknown. If not available, report as null.
10	sys_loc_code	Text(20)	Required*	Sample collection location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD. **Note**: *Field should be null if sample is not associated with a specific location, such as QC samples (e.g., field blank, trip blank)*
11	start_depth	Numeric	If Available	Beginning depth (top) of sample in feet below ground surface. For surface water samples, use beginning depth below water surface elevation. The water surface elevation at the time sample was collected should be reported in the Water Level File. This field should be left null for most ground water samples collected from monitoring wells. The database will base the start depth for groundwater samples on the starting depth of the well screen as it is listed in the Well Construction and Well Files. Enter depth for groundwater samples only if discrete samples are taken at different depth elevations from a single well, i.e. multiple well packer samples. If not available, report as null.
12	end_depth	Numeric	If Available	Ending depth (bottom) of sample in feet below ground surface. For surface water samples, use ending depth below water surface elevation. The water surface elevation at the time sample was collected should be reported in the Water Level File. This field should be left null for most ground water samples collected from monitoring wells. The database will base the end depth for groundwater samples on the end depth of the well screen as it is listed in the Well Construction and Well Files. Enter depth for groundwater samples only if discrete samples are taken at different depth elevations from a single well, i.e. multiple well packer samples. If not available, report as null.
13	depth_unit	Text(15)	If Available	Unit of measurement for the sample beginning and end depths. Use values in Table A-17 of the Appendix. If not available, report as null.
14	chain_of_custody	Text(15)	If Available	Chain of custody identifier. A single sample may be assigned to only one chain of custody. If not available, report as null.

Table 4-1 Chemistry Sample File Data Structure

Column #	Column Name	Data Type	Required	Description
15	sent_to_lab_date	Date/Time	If Available	Date sample was sent to lab in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. If not available, report as null.
16	sample_receipt_date	Date/Time	If Available	Date that sample was received at laboratory MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. If not available, report as null.
17	sampler	Text(30)	If Available	Name or initials of sampler. If not available, report as null.
18	sampling_company_code	Text(10)	Required	Name or initials of consulting company performing sampling. Use codes in Table A-16 of the Appendix. To create a new sampling company code, follow the instructions for requesting a new valid value in Section 2.1.2.
19	sampling_reason	Text(30)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
20	sampling_technique	Text(40)	If Available	Sampling technique (e.g. "SPLIT SPOON"). If not available, report as null.
21	task_code	Text(8)	Required	Date in YYYYMMDD format used to associate individual samples to a specific sampling event. For example, if one sampling event was performed over a three day period from 05-03-2003 to 05-06-2003, the task-code would be the first sampling date, 20030503.
22	collection_quarter	Text(5)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
23	composite_yn	Text(1)	Required	This field indicates if the sample is a composite sample. Enter "Y" for yes or "N" for no.
24	composite_desc	Text(255)	If Available	Description of composite sample. If not available or sample is not a composite, report as null.
25	sample_class	Text(10)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
26	custom_field_1	Text(20)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
27	task_phase	Text(50)	If Available	Identifies the phase in which the sampling event occurred. Must use one of the following: PR = Pre Remedial, RI = Remedial Investigation, FS = Feasibility Study, PD = Pre-Design, RD = Remedial Design, RA = Remedial Construction, PC = Post Construction, RV = Removal Action, BD = Before Dredge, AD = After Dredge, BR = Brown Fields, SP = Special Project); and MM-DD-YYYY is the date the sampling event started. (e.g. RI-01-02-2008). If not available, report as null.
28	custom_field_3	Text(50)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
29	comment	Text(255)	If Available	Any comments regarding the sample. If not available, report as null.

4.2 CHEMISTRY TEST/RESULTS EDD FILES

The Chemistry Test/Results and Chemistry Test/Results with Quality Control (QC) Files contain data relating to analytical tests and results performed on samples. This file is also used for *in situ* measurements taken in the field -- such as pH, conductivity, Eh, and dissolved oxygen. The three files associated with analytical results data are the Chemistry Test/Result File, Chemistry Test/Result with QC File, and Batch Data File. The Chemistry Test/Result File is a subset of the Chemistry Test/Result with QC File and only one of the two files should be submitted. If the Chemistry Test/Result data has accompanying quality control data then the Chemistry Test/Result with QC File should be submitted and not the Chemistry Test/Result File. If there is no quality control data accompanying the data, the Chemistry Test/Result File should be submitted and not the Chemistry Test/Result with QC File.

In most cases, data submitted to EPA by private sector consultants is expected to have already been validated by the data provider. This means that in nearly all these cases, the Chemistry Sample and Chemistry Test/Result Files will be the only files submitted. When private sector consultants are submitting chemistry EDDs to EPA, the Chemistry Test/Result with QC and/or the Batch Data Files should be submitted only upon EPA request. In many cases, however, when data is submitted to EPA by EPA Region 5 contractors, the data have not yet been validated. In these cases, QC data will need to be submitted in the form of the Chemistry Test/Result with QC and Batch Data Files (Table 4-3 and Table 4-4). Examples of Chemistry Test/Results Files are provided in Figure 2-4 and Figure 2-5 of Section 2.6.

4.2.1 Chemistry Test/Results without QC File

The Chemistry Test/Results File should be submitted when no QC data are being submitted. Each Chemistry Test/Results File must be named according to the following convention:

EPAR5TRS_v2.txt (or .csv, .xls, .mdb)

Table 4-2 Chemistry Test/Result File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_sample_code	Text(40)	Required PK	Unique sample identifier corresponding to the code entered in the Chemistry Sample File. See Table 4-1, Column 2.
2	lab_anl_method_ name	Text(35)	Required PK	Laboratory analytical method name or description. Use values in Table A-15 of the Appendix. Report as "UNKNOWN", if method is not available.
3	Analysis_date	Date/Time	Required PK	Date and time of analysis in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. Date may refer to either beginning or end of the analysis. For measurements taken in the field (e.g., pH, dissolved oxygen), use the same date as sample date (see Table 4-1, Column 9). Note that this field is used to distinguish between retests and reruns (if reported). Please ensure that retests have values in the "analysis_date" fields that differs from the original test event.
4	total_or_dissolved	Text(1)	Required PK	Must be either “D” for dissolved or filtered [metal] concentrations, **and “T” for <u>every</u> other case including organics**.
5	column_number	Text(2)	Reserved for future use	This field is reserved for EPA Region 5’s future use. Please leave blank.

Table 4-2 Chemistry Test/Result File Data Structure

Column #	Column Name	Data Type	Required	Description
6	test_type	Text(10)	Required PK	Type of test. Valid values include "INITIAL", "REEXTRACT1", "REEXTRACT2", "REEXTRACT3", "REANALYSIS", "DILUTION1", "DILUTION2", and "DILUTION3". Use "INITIAL" if unknown or data is from measurements taken in the field (e.g., pH, dissolved oxygen).
7	lab_matrix_code	Text(3)	Required	Code that identifies the matrix, such as soil, groundwater, and sediment, being sampled. Use values in Table A-1 of the Appendix. The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g., leachates), so this field is available at both the sample and test level.
8	analysis_location	Text(2)	Required	Must be either "FI" for field instrument or probe (i.e, "in the field" measurements such as pH, temperature, conductivity, and dissolved oxygen), "FL" for mobile field laboratory analysis, or "LB" for an analysis done at a fixed-based laboratory.
9	basis	Text(10)	Required	Must be "WET" for wet-weight basis reporting, "DRY" for dry-weight basis reporting, or "NA" for tests for which this distinction is not applicable. EPA prefers that results are reported on the basis of dry weight where applicable.
10	container_id	Text(30)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
11	dilution_factor	Numeric	If Available	Effective test dilution factor. If not available, report as null.
12	prep_method	Text(35)	If Available	Laboratory sample preparation method name or description. Use values from Table A-13 of the Appendix. If not available, report as null.
13	prep_date	Date/Time	If Available	Beginning date and time of sample preparation in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. If not available, report as null.
14	leachate_method	Text(15)	Required if Leached	Laboratory leachate generation method name or description. The method name should be sufficient to reflect the operation methodology used by the laboratory.
15	leachate_date	Date/Time	Required if Leached	Beginning date and time of leachate preparation in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. If not available, report as null.
16	lab_name_code	Text(20)	If Available	Unique identifier of the laboratory as defined by EPA. Use codes in Table A-16 of the Appendix. To request the creation of a new laboratory code, follow the instructions for requesting a new valid value in Section 2.1.2.
17	qc_level	Text(10)	Required	May be either "SCREEN" for screening data or "QUANT" for quantitative data. Default value is "QUANT".

Table 4-2 Chemistry Test/Result File Data Structure

Column #	Column Name	Data Type	Required	Description
18	lab_sample_id	Text(20)	Required	Laboratory Information Management System (LIMS) sample identifier. If necessary, a field sample may have more than one LIMS lab_sample_id (maximum one per each test event).
19	percent_moisture	Text(5)	If Available	Percent moisture of the sample portion used in this test; this value may vary from test to test for any sample. Numeric format is "NN.MM", i.e., 70.1% could be reported as "70.1" but not as "70.1%". If not available, report as null.
20	subsample_amount	Text(14)	If Available	Amount of sample used for test. If not available, report as null.
21	subsample_amount_ unit	Text(15)	If Available	Unit of measurement for sub-sample amount. Use values in Table A-17 of the Appendix. If not available, report as null.
22	analyst_name	Text(30)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
23	instrument_id	Text(50)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
24	comment	Text(255)	If Available	Comments about the test as necessary. If not available, report as null.
25	preservative	Text(20)	If Available	Sample preservative used. If not available, report as null.
26	final_volume	Numeric	If Available	The final volume of the sample after sample preparation. Include all dilution factors. If not available, report as null.
27	final_volume_unit	Text(15)	If available	The unit of measure that corresponds to the final_amount. If not available, report as null.
28	cas_rn	Text(15)	Required PK	Analyte code. Use codes in Table A-14 of the Appendix.
29	chemical_name	Text(75)	Required	Chemical name. Use codes in Table A-14 of the Appendix.
30	result_value	Numeric	Required *	Analytical result reported at an appropriate number of significant digits. ***Note**: Required if detect_flag = "Y" and result_type_code is "TRG" or "TIC". If not required, report as null.*
31	result_error_delta	Text(20)	If Available	Error range applicable to the result value; typically used only for radiochemistry results. If not available, report as null.
32	result_type_code	Text(3)	Required	Must be either "TRG" for a target or regular result, "TIC" for a tentatively identified compound, "SUR" for surrogates, "IS" for internal standards, or "SC" for spiked compounds. Use "TRG" for measurements taken from the field (e.g., pH, dissolved oxygen).

Table 4-2 Chemistry Test/Result File Data Structure

Column #	Column Name	Data Type	Required	Description
33	reportable_result	Text(10)	Required	Must be either "YES" for results that are considered to be reportable, or "NO" for other results. This field has many purposes. For example, it can be used to distinguish between multiple results where a sample is retested after dilution. It can also be used to indicate which of the first or second column result should be considered primary. The proper value of this field in both of these two examples should be provided by the laboratory (only one result should be flagged as reportable).
34	detect_flag	Text(2)	Required	Must be either "Y" for detected analytes or "N" for non-detects. "Y" should be used for detected target compounds and TICs only (i.e. result_type_code is "TRG" or "TIC"). Also use "Y" for estimated (above detection limit but below the quantitation limit) or ">" and "<" for tests such as flash point. Note that "<" must not be used to indicate non-detects.
35	lab_qualifiers	Text(10)	If Available	Qualifier flags assigned by the laboratory. If not available, report as null.
36	validator_qualifiers	Text(10)	If Available	Qualifier flags assigned by the person who validates the laboratory data. If not available, report as null.
37	interpreted_ qualifiers	Text(10)	Required*	Qualifier flags assigned by the person who interpreted the validated data for the most appropriate qualifier. Use values in Table A-10 of the Appendix. If not available, report as null. ***Note**: Required if lab qualifiers or validator qualifiers populated. If not required, report as null.*
38	organic_yn	Text(1)	Required	Must be either "Y" for organic constituents or "N" for inorganic constituents. Use "Y" for measurements taken from the field (e.g., pH, dissolved oxygen)
39	method_detection_ limit	Text(20)	Required	The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as determined for a specific procedure.
40	reporting_detection_ limit	Numeric	Required*	Concentration level above which results can be quantified with confidence as they relate to a pre-defined minimum reporting detection limit. The value must reflect conditions such as dilution factors and moisture content, and must be sample-specific. ***Note**: Required if result_value IS NULL. The reporting_detection_limit column must be reported as the sample specific detection limit. If not required, report as null.*

Table 4-2 Chemistry Test/Result File Data Structure

Column #	Column Name	Data Type	Required	Description
41	quantitation_limit	Text(20)	Required	Concentration level above which results can be quantified with confidence. The value must reflect conditions such as dilution factors and moisture content, and must be sample-specific.
42	result_unit	Text(15)	Required if result_value IS NOT null	Units of measurement for the result. Use values in Table A-17 of the Appendix. ***Note**: Required if result_value IS NOT NULL. If not required, report as null.*
43	detection_limit_unit	Text(15)	Required if detect_flag = N	Units of measurement for the detection limit(s). Use values in Table A-17 of the Appendix. ***Note**: Required if detect_flag = N. If not required, report as null.*
44	tic_retention_time	Text(8)	Reserved for future use	This field is only to be used by EPA Region 5 personnel. Please leave blank.
45	result_comment	Text(255)	If available	Result specific comments. If not available, report as null.

4.2.2 Chemistry Test/Result with QC File

The Chemistry Test/Results with QC File contains data from analytical tests performed on samples along with quality control data. The first 45 columns of this EDD file are identical to the 45 columns found in the Chemistry Test/Results File (Section 4.3.1). In addition to these fields, however, the Chemistry Test/Results with QC File includes fields for QC data. For the most part, the Chemistry Test/Result File will only need to be submitted by EPA contractors that are submitting quality data elements with their reports.

Each Chemistry Test/Results with QC File must be named according to the following convention:

EPAR5TRSQC_v2.txt (or .csv, .xls, .mdb)

Table 4-3 Chemistry Test/Results with QC Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_sample_code	Text(40)	Required PK	Unique sample identifier corresponding to the code entered in the Chemistry Sample File. See Table 4-1, Column 2.
2	lab_anl_method_ name	Text(35)	Required PK	Laboratory analytical method name or description. Use values in Table A-15 of the Appendix. Report as "UNKNOWN", if method is unavailable.

Table 4-3 Chemistry Test/Results with QC Data Structure

Column #	Column Name	Data Type	Required	Description
3	analysis_date	Date/Time	Required PK	Date and time of analysis in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. Date may refer to either beginning or end of the analysis. For measurements taken in the field (e.g., pH, dissolved oxygen), use the same date as sample date (see Table 4-1, Column 9). Note that this field is used to distinguish between retests and reruns (if reported). Please ensure that retests have values in the "analysis_date" fields that differs from the original test event.
4	total_or_dissolved	Text(1)	Required PK	Must be either "D" for dissolved or filtered [metal] concentrations, **and "T" for every other case including organics**.
5	column_number	Text(2)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
6	test_type	Text(10)	Required PK	Type of test. Valid values include "INITIAL", "REEXTRACT1", "REEXTRACT2", "REEXTRACT3", "REANALYSIS", "DILUTION1", "DILUTION2", and "DILUTION3". Use "INITIAL" if unknown or data is from measurements taken in the field (e.g., pH, dissolved oxygen).
7	lab_matrix_code	Text(3)	Required	Code that identifies the matrix, such as soil, groundwater, and sediment, being sampled. Use values in Table A-1 of the Appendix. The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g., leachates), so this field is available at both the sample and test level.
8	analysis_location	Text(2)	Required	Must be either "FI" for field instrument or probe (i.e, "in the field" measurements such as pH, temperature, conductivity, and dissolved oxygen), "FL" for mobile field laboratory analysis, or "LB" for an analysis done at a fixed-based laboratory.
9	basis	Text(10)	Required	Must be "WET" for wet-weight basis reporting, "DRY" for dry-weight basis reporting, or "NA" for tests for which this distinction is not applicable. EPA prefers that results are reported on the basis of dry weight where applicable.
10	container_id	Text(30)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
11	dilution_factor	Numeric	If Available	Effective test dilution factor. If not available, report as null.
12	prep_method	Text(35)	If Available	Laboratory sample preparation method name or description. Use values from Table A-13 of the Appendix. If not available, report as null.
13	prep_date	Date/Time	If Available	Beginning date and time of sample preparation in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. If not available, report as null.

Table 4-3 Chemistry Test/Results with QC Data Structure

Column #	Column Name	Data Type	Required	Description
14	leachate_method	Text(15)	Required if leached	Laboratory leachate generation method name or description. The method name should be sufficient to reflect the operation methodology used by the laboratory.
15	leachate_date	Date/Time	Required if leached	Beginning date and time of leachate preparation in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format, report as 00:00 if time is unknown. If not available, report as null.
16	lab_name_code	Text(10)	If Available	Unique identifier of the laboratory as defined by EPA. Use codes in Table A-16 of the Appendix. To request the creation of a new laboratory code, follow the instructions for requesting a new valid value in Section 2.1.2.
17	qc_level	Text(10)	If Available	May be either "SCREEN" for screening data or "QUANT" for quantitative data. Default value is "QUANT".
18	lab_sample_id	Text(20)	If Available	Laboratory Information Management System (LIMS) sample identifier. If necessary, a field sample may have more than one LIMS lab_sample_id (maximum one per each test event).
19	percent_moisture	Text(5)	If Available	Percent moisture of the sample portion used in this test; this value may vary from test to test for any sample. Numeric format is "NN.MM", i.e., 70.1% could be reported as "70.1" but not as "70.1%". If not available, report as null.
20	subsample_amount	Text(14)	If Available	Amount of sample used for test. If not available, report as null.
21	subsample_amount_unit	Text(15)	If Available	Unit of measurement for sub sample amount. Use values in Table A-17 of the Appendix. If not available, report as null.
22	analyst_name	Text(30)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
23	instrument_id	Text(50)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
24	comment	Text(255)	If Available	Comments about the test as necessary. If not available, report as null.
25	preservative	Text(50)	If Available	Sample preservative used. If not available, report as null.
26	final_volume	Numeric	If Available	The final volume of the sample after sample preparation. Include all dilution factors. If not available, report as null.
27	final_volume_unit	Text(15)	If Available	The unit of measure that corresponds to the final_amount. If not available, report as null.
28	cas_rn	Text(15)	Required PK	Analyte code. Use codes in Table A-14 of the Appendix.
29	chemical_name	Text(75)	Required	Chemical name. Use codes in Table A-14 of the Appendix.

Table 4-3 Chemistry Test/Results with QC Data Structure

Column #	Column Name	Data Type	Required	Description
30	result_value	Numeric	Required *	Analytical result reported at an appropriate number of significant digits. ***Note**: Required if detect_flag = "Y" and result_type_code is "TRG" or "TIC". If not required, report as null.*
31	result_error_delta	Text(20)	If Available	Error range applicable to the result value; typically used only for radiochemistry results. If not available, report as null.
32	result_type_code	Text(10)	Required	Must be either "TRG" for a target or regular result, "TIC" for a tentatively identified compound, "SUR" for surrogates, "IS" for internal standards, or "SC" for spiked compounds. Use "TRG" for measurements taken from the field (e.g., pH, dissolved oxygen).
33	reportable_result	Text(10)	Required	Must be either "Yes" for results that are considered to be reportable, or "No" for other results. This field has many purposes. For example, it can be used to distinguish between multiple results where a sample is retested after dilution. It can also be used to indicate which of the first or second column result should be considered primary. The proper value of this field in both of these two examples should be provided by the laboratory (only one result should be flagged as reportable).
34	detect_flag	Text(2)	Required	Must be either "Y" for detected analytes or "N" for non-detects. "Y" should be used for detected target compounds and TICs only (i.e. result_type_code is "TRG" or "TIC"). Also use "Y" for estimated (above detection limit but below the quantitation limit) or ">" and "<" for tests such as flash point. Note that "<" must not be used to indicate non-detects.
35	lab_qualifiers	Text(10)	If available	Qualifier flags assigned by the laboratory. If not available, report as null.
36	validator_qualifiers	Text(10)	If available	Qualifier flags assigned by the person who validates the laboratory data. If not available, report as null.
37	interpreted_ qualifiers	Text(10)	Required*	Qualifier flags assigned by the person who interpreted the validated data for the most appropriate qualifier. Use values in Table A-10 of the Appendix. If not available, report as null. ***Note**: Required if lab qualifiers or validator qualifiers populated. If not required, report as null.*
38	organic_yn	Text(1)	Required	Must be either "Y" for organic constituents or "N" for inorganic constituents. Use "Y" for measurements taken from the field (e.g., pH, dissolved oxygen)

Table 4-3 Chemistry Test/Results with QC Data Structure

Column #	Column Name	Data Type	Required	Description
39	method_detection_ limit	Text(20)	If available	The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as determined for a specific procedure.
40	reporting_detection _limit	Numeric	Required if detect_flag = N	Concentration level above which results can be quantified with confidence as they relate to a pre-defined minimum reporting detection limit. The value must reflect conditions such as dilution factors and moisture content, and must be sample-specific. ***Note**: Required if result_value IS NULL. The reporting_detection_limit column must be reported as the sample specific detection limit. If not required, report as null.*
41	quantitation_limit	Text(20)	If available	Concentration level above which results can be quantified with confidence. The value must reflect conditions such as dilution factors and moisture content, and must be sample-specific.
42	result_unit	Text(15)	Required*	Units of measurement for the result. Use values in Table A-17 of the Appendix. ***Note**: Required if result_value IS NOT NULL. If not required, report as null.*
43	detection_limit_ unit	Text(15)	Required*	Units of measurement for the detection limit(s). Use values in Table A-17 of the Appendix. ***Note**: Required if detect_flag = N. If not required, report as null.*
44	tic_retention_time	Text(8)	Reserved for future use	This field is only to be used by EPA Region 5 personnel. Please leave blank.
45	result_comment	Text(255)	If Available	Result specific comments. If not available, report as null.
46	qc_original_conc	Numeric	If Available	The concentration of the analyte in the original (unspiked) sample. Might be required for spikes and spike duplicates (depending on user needs). Not necessary for surrogate compounds or LCS samples (where the original concentration is assumed to be zero). If not available, report as null.
47	qc_spike_added	Numeric	If Available	The concentration of the analyte added to the original sample. Might be required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample (depending on user needs). If not available, report as null.
48	qc_spike_measured	Numeric	If Available	The measured concentration of the analyte. Use zero for spiked compounds that were not detected in the sample. Might be required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample (depending on user needs). If not available, report as null.

Table 4-3 Chemistry Test/Results with QC Data Structure

Column #	Column Name	Data Type	Required	Description
49	qc_spike_recovery	Numeric	If Available*	The percent recovery calculated as specified by the laboratory QC program. Report as percentage multiplied by 100 (e.g., report "120%" as "120"). If not available, report as null. ***Note**: Always required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample.*
50	qc_dup_original_ conc	Numeric	If Available	The concentration of the analyte in the original (unspiked) sample. Might be required for spike or LCS duplicates only (depending on user needs). Not necessary for surrogate compounds or LCS samples (where the original concentration is assumed to be zero). If not available, report as null.
51	qc_dup_spike_ added	Numeric	If Available*	The concentration of the analyte added to the original sample. Might be required for spike or LCS duplicates, surrogate compounds, and any spiked and duplicated sample (depending on user needs). Use zero for spiked compounds that were not detected in the sample. Also complete the qc-spike-added field. If not available, report as null. ***Note**: Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample.*
52	qc_dup_spike_ measured	Numeric	If Available	The measured concentration of the analyte in the duplicate. Use zero for spiked compounds that were not detected in the sample. Might be required for spike and LCS duplicates, surrogate compounds, and any other spiked and duplicated sample (depending on user needs). Also complete the qc_spike_measured field. If not available, report as null.
53	qc_dup_spike_ recovery	Numeric	If Available*	The duplicate percent recovery calculated as specified by the laboratory QC program. Also complete the qc_spike_recovery field. Report as percentage multiplied by 100 (e.g., report "120%" as "120"). If not available, report as null. ***Note**: Always required for spike or LCS duplicates, surrogate compounds, and any other spiked and duplicated sample.*
54	qc_rpd	Text(8)	If Available*	The relative percent difference calculated as specified by the laboratory QC program. Report as percentage multiplied by 100 (e.g., report "30%" as "30"). If not available, report as null. ***Note**: Required for duplicate samples as appropriate.*

Table 4-3 Chemistry Test/Results with QC Data Structure

Column #	Column Name	Data Type	Required	Description
55	qc_spike_lcl	Text(8)	If Available*	Lower control limit for spike recovery. Report as percentage multiplied by 100 (e.g., report "60%" as "60"). If not available, report as null. ***Note**: Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample.*
56	qc_spike_ucl	Text(8)	If Available*	Upper control limit for spike recovery. Report as percentage multiplied by 100 (e.g., report "120%" as "120"). If not available, report as null. ***Note**: Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample.*
57	qc_rpd_cl	Text(8)	If Available*	Relative percent difference control limit. Report as percentage multiplied by 100 (e.g., report "25%" as "25"). If not available, report as null. ***Note**: Required for any duplicated sample.*
58	qc_spike_status	Text(10)	If Available*	Indicates whether the spike recovery was within control limits. Use the "*" character to indicate failure, otherwise leave blank. If not available, report as null. ***Note**: Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample.*
59	qc_dup_spike_ status	Text(10)	If Available*	Indicates whether the duplicate spike recovery was within control limits. Use the "*" character to indicate failure, otherwise leave blank. If not available, report as null. ***Note**: Required for any spiked and duplicated sample.*
60	qc_rpd_status	Text(10)	If Available*	Indicates whether the relative percent difference was within control limits. Use the "*" character to indicate failure, otherwise leave blank. If not available, report as null. *Note: Required for any duplicated sample.*

4.2.3 Chemistry Batch Data File

The Chemistry Batch Data File contains data that relate the individual samples to the laboratory batch identifier. For the most part, as with the Chemistry Test/Result with QC File, the Chemistry Batch Data File will only need to be submitted by EPA contractors that are submitting quality data elements with their reports. The purpose of this EDD file is to associate the laboratory quality control samples with the correct field samples for which they were processed and analyzed. This EDD file has been structured to allow samples to have different batch IDs for various phases of analysis (e.g., preparation phase, analysis phase). The majority of samples will only have one batch ID assigned by the laboratory. It is important that the values in the sys_sample_code (Table 4-4, Column 1), lab_anl_method_name (Table 4-4, Column 2), analysis_date (Table 4-4, Column 3), total_or_dissolved (Table 4-4, Column 4), and test_type (Table 4-4, Column 6) fields match those found in the Chemistry Test/Result or Chemistry Test/Result with QC Files.

Each Chemistry Batch File must be named according to the following convention:

EPAR5BAT_v2.txt (or .csv, .xls, .mdb)

Table 4-4 Chemistry Batch File Data Structure

Column #	Column Name	Data type	Required	Description
1	sys_sample_code	Text(40)	Required PK	Unique sample identifier of the sample that was tested and analyzed corresponding to the code entered in the Chemistry Sample File in the current or previous EDD. See Table 4-1, Column 2.
2	lab_anl_method_ name	Text(35)	Required	Laboratory analytical method name or description. For acceptable valid values, see Table A-15 in the Appendix. If not available, report as "Unknown".
3	analysis_date	Date/Time	Required	Date and time of sample analysis in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format. May refer to either beginning or end of the analysis as required by EPA.
4	total_or_dissolved	Text(1)	Required	Must be either "D" for dissolved or filtered [metal] concentrations, **and "T" for <u>every</u> other case including organics**.
5	column_number	Text(2)	Reserved for future use	This field is reserved for EPA Region 5's future use. Please leave blank.
6	test_type	Text(10)	Required	Type of test. Valid values include "Initial," "REEXTRACT1", "REEXTRACT2", "REEXTRACT3", "REANALYSIS", "DILUTION1", "DILUTION2", and "DILUTION3."
7	test_batch_type	Text(10)	Required	Lab batch type. Valid values include "PREP", "ANALYSIS", and "LEACH".
8	test_batch_id	Text(20)	Required	Unique identifier for all lab batches.

4.3 WATER LEVEL FILE

The Water Level File contains information on water levels measured during sampling activities. Groundwater levels and surface water elevations should be reported using this file; however, in most cases, the file will be used to report groundwater levels. When surface water samples are collected this EDD file should be used to record water surface elevations at the time the samples were collected. Surface water elevations reported in this file will be used as the reference elevation for surface water sample depths (i.e., start_depth (Table 4-1, Column 11), and end_depth (Table 4-1, Column 12) in the Chemistry Sample File). When using the Water Level File for reporting surface water data, only the first four fields (Table 4-5, Columns 1 through 4) and the "remark" field (Table 4-5, Column 15) should be populated. All fields in the Water Level File however, should be populated for groundwater elevation data (if data is available). An example of a Water Level File is provided in Figure 2-4, Section 2.6.

Each Water Level File must be named according to the following convention:

EPAR5GWTR_v2.txt (or .csv, .xls, .mdb)

Table 4-5 Water Level File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required PK	Water level measurement location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 2) submitted in the current or previous EDD.
2	measurement_date	Date/Time	Required PK	Date and time of water level measurement in MM/DD/YYYY HH:MM format. Time of water level measurement must be in 24-hr (military) format. If exact date is not known, enter the best estimate for the date of water level measurement. If an estimated date is entered, note this and provide an explanation for how the estimate was made in the comment column of this file (Column 10).
3	historical_ reference_elev	Numeric	Required PK	For groundwater samples, the value in this field should be the elevation, in feet above mean sea level, of the reference point used to take measurements of the water level depth. Typically the reference point for groundwater measurements is the top of the well casing. For surface water samples, the value in this field should be the elevation of the surface water in feet above mean sea level. If elevation is given in units other than feet above mean sea level, please indicate the unit used in the remark column of this file (Column 15).
4	water_level_depth	Numeric	Required PK	For groundwater, the value in this field should be the depth of ground water below the elevation defined in historical_reference_elev field (Column 3). For surface water, the value in this field should be the default value of "0".

Table 4-5 Water Level File Data Structure

Column #	Column Name	Data Type	Required	Description
5	water_level_elev	Numeric	If Available	Elevation of water level. Elevation must be in feet. If not available, report as null.
6	corrected_depth	Numeric	If Available	Depth of water level after any necessary corrections, e.g., if free product was encountered. If not available, report as null.
7	corrected_elev	Numeric	If Available	Corrected water level elevation that corresponds to the corrected depth. Elevation must be in feet. If not available, report as null.
8	measured_depth_ of_well	Numeric	If Available	The depth below ground surface to the bottom of the well. If not available, report as null.
9	depth_unit	Text (15)	If Available	Unit used for depth measurements. Use values in Table A-17 of the Appendix. If not available, report as null.
10	technician	Text (30)	If Available	Name of technician measuring water level. If not available, report as null.
11	dry_indicator_yn	Text (1)	If Available	Indicates whether or not a well is dry – "Y" for yes or "N" for no. If not available, report as null.
12	measurement_ method	Text (20)	If Available	Method used to make water level measurements. If not available, report as null.
13	batch_number	Text (10)	If Available	Batch number of group of measurements. If not available, report as null.
14	dip_or_elevation	Text (10)	If Available	Use either "ELEVATION" or "DIP". Use "ELEVATION" if water level measurement is above the datum (i.e., artesian well) or "DIP" if water level is below datum. If not available, report as null.
15	remark	Text(255)	If Available	Any necessary remarks related to groundwater or surface water information provided in this EDD file. If not available, report as null.
16	Lnapl_cas_rn	Text (15)	If Available	Analyte code of the light non-aqueous phase liquid (LNAPL) present in the well. Use values in Table A-14 of the Appendix. If not available, report as null.
17	Lnapl_depth	Numeric	If Available	Depth to the top surface of the lnapl in feet below the reference elevation. If not available, report as null.
18	Dnapl_cas_rn	Text (15)	If Available	Analyte code of the dense non-aqueous phase liquid (DNAPL) present in the well. Use values in Table A-14 of the Appendix. If not available, report as null.
19	Dnapl_depth	Numeric	If Available	Depth to the top surface of the DNAPL in feet below the reference elevation. If not available, report as null.
20	Task_code	Text(8)	If available	Date in YYYYMMDD format used to associate individual measurements to a specific measurement event. For example, if measurements were performed over a three day period from 05-03-2003 to 05-06-2003, the task-code would be the first measurement date, 20030503. If not available, report as null.

4.4 EXTRACTION – INJECTION WELL FILE

The Extraction-Injection Well File should be submitted on a regular (e.g., quarterly) basis for all sub-facilities where extraction and/or injection wells are a part of the remedial action at the sub-facility. The purpose of the Extraction-Injection Well File is to provide EPA Region 5 with designed pumping rates as well as the actual pumping rates for each well during a particular reporting period. This information is useful for determining if the remedial system is successfully capturing the contaminant plume. An example of an Extraction-Injection Well File is provided in Figure 2-4, Section 2.6.

Each Extraction-Injection Well File must be named according to the following convention:

EPAR5EIW_v2.txt (or .csv, .xls, .mdb)

Table 4-6 Extraction-Injection Well File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required PK	Well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3 Column 3) submitted in the current or previous EDD.
2	start_measure_date	Date/Time	Required PK	Date and time that the pumping rate measurements began in MM/DD/YYYY HH:MM format. Time should be reported in 24-hr (military) format.
3	end_measure_date	Date/Time	Required	Date and time that the pumping rate measurements concluded in MM/DD/YYYY format. Time should be reported in 24-hr (military) format
4	avg_pump_rate	Numeric	Required	Average pumping rate. Recommended method is to use volume pumped divided by the reported date span, (i.e., from the start_measurement_date to end_measurement_date)
5	pump_rate_unit	Text(15)	Required	Unit of measure for the pumping rate. Use values in Table A-17 of the Appendix.
6	pct_operating_time	Text(3)	If Available	Percentage of the measurement time interval during which the well was operating. Use a value from 0 to 100 (do not include the percent symbol, "%"). If not available, report as null
7	operating_mode	Text(14)	Required	Mode in which well was operating during the reported interval. Select from the following valid values: "EXTRACTION", "INJECTION", "RECIRCULATION", "PULSE", "DEVEL", and "UNUSE".
8	design_rate	Text(14)	Required	Pumping rate as specified in the approved remedial design report for fully capturing sub-facility groundwater contamination.
9	design_rate_unit	Text(14)	Required	Unit of measure for the design pumping rate. Use values in Table A-17 of the Appendix.

Table 4-6 Extraction-Injection Well File Data Structure

Column #	Column Name	Data Type	Required	Description
10	rate_measurement_type	Text(14)	If Available	Type of measurements used for averaging. Select from the following valid values: "TOTALIZER" (totalizing flow meter), "MANIFOLD" (estimated from total manifold flow), "ESTIMATE" (estimate from prior values), and "AVERAGE" (average of instantaneous measurements). If not available, report as null.
11	suction	Text(14)	If Available	Vacuum in well (e.g., wellpoint vacuum) or well casing (e.g., vacuum well), reported in equivalent feet of water. If not available, report as null.
12	remark	Text(255)	If Available	Remarks regarding the pumping rate measurements. If not available, report as null.

5.0 FORMATS FOR GEOLOGY EDD FILES

This section contains tables that define the file structures for the Geology EDD. The file structures are included for the following sections: Drill Activity, Lithology, Well, Well Construction, Geology Samples, Water Level, Water Table, and Down-Hole Point Data. Columns marked "Required" must be reported for each row in the file. Columns marked "Required PK" are required fields as well as primary keys that help to define row uniqueness. If an EDD is submitted with one or more "Required" fields not filled in, the EDD will not be able to load the database, and the EDD will require further data provider correction(s). Columns marked "If available" must be reported if the information is available.

***Note**: "If Available" fields may be required depending on data populated in other fields.*

Examples of the EDD files that make up the Geology EDDs are provided in Figure 2-6 of Section 2.6.

5.1 DRILL ACTIVITY FILE

The Drill Activity File contains general information pertaining to the drilling activities resulting from the soil boring. Each Drill Activity File must be named according to the following convention:

EPAR5DRA_v2.txt (or .csv, .xls, .mdb)

Table 5-1 Drill Activity File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required PK	Soil boring or well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD.
2	drill_event	Text(20)	Required PK	Used to identify drilling event. Examples of drilling events could be "INITIAL" for initial drilling or "SECOND" for a subsequent drilling at the same sys_loc_code.
3	start_depth	Numeric	If Available	The start depth, in feet below ground surface, of the drilling. If not available, report as null.
4	end_depth	Numeric	If Available	End depth, in feet below ground surface of the drilling. If not available, report as null.
5	drill_date	Date/Time	If Available	Date and time that the drilling began in MM/DD/YYYY HH:MM format. Time should be reported in 24-hr (military) format.
6	diameter	Numeric	If Available	Diameter of boring. If not available, report as null.
7	diameter_unit	Text(15)	If Available	Unit corresponding to measured diameter. Use values in Table A-17 of the Appendix. If not available, report as null.
8	drill_method	Text(50)	If Available	Method used to drill boring. If not available, report as null.
9	fluid	Text(50)	If Available	Description of fluid used during drilling. If not available, report as null.
10	viscosity	Text(50)	If Available	Viscosity of drilling fluid. If not available, report as null.
11	hammer_wt	Text(50)	If Available	Weight, in pounds, of the hammer used for sampling. If not available, report as null.

Table 5-1 Drill Activity File Data Structure

Column #	Column Name	Data Type	Required	Description
12	hammer_fall	Text(50)	If Available	Distance, in inches, of hammer fall during sampling. If not available, report as null.
13	lift_mechanism	Text(50)	If Available	Type of mechanism used to lift hammer. If not available, report as null.
14	new_yn	Text(1)	If Available	Indicates whether this is a new boring. Enter "Y" for yes or "N" for no. If not available, report as null.
15	repair_yn	Text(1)	If Available	Indicates whether this drilling event is to repair an existing boring. Enter "Y" for yes or "N" for no. If not available, report as null.
16	deepen_yn	Text(1)	If Available	Indicates whether this drilling event is to deepen an existing boring. Enter "Y" for yes or "N" for no. If not available, report as null.
17	abandon_yn	Text(1)	If Available	Indicates whether this boring has been abandoned. Enter "Y" for yes or "N" for no. If not available, report as null.
18	replace_yn	Text(1)	If Available	Indicates whether this boring event is to replace an existing boring. Enter "Y" for yes or "N" for no. If not available, report as null.
19	public_yn	Text(1)	If Available	Indicates whether the well is being installed for a public use. Enter "Y" for yes or "N" for no. If not available, report as null.
20	purpose	Text(70)	If Available	Describe the purpose of the boring event. If not available, report as null.

5.2 LITHOLOGY FILE

The Lithology File contains all the lithology data for soil borings. For each lithologic unit, 16 fields are available for populating with data about the boring. Optional comments can be recorded in the remark_1 and remark_2 columns of this file (Column 6 and 7) to describe depth-specific observations within a lithologic unit.

Each Lithology File must be named according to the following convention:

EPAR5LTH_v2.txt (or .csv, .xls, .mdb)

Table 5-2 Lithology File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required PK	Soil boring or well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD.
2	start_depth	Numeric	Required PK	The start depth, in feet below ground surface, of the lithologic unit.
3	material_type	Text(40)	Required if geo_unit null	The type of material that composes the lithologic unit. Use values in Table A-18 of the Appendix.
4	geo_unit_code_1	Text(20)	If Available	The data provider's interpretation of the hydrogeologic unit present at this lithologic unit, e.g., aquifer 1, aquitard 1, aquifer 2, upper clay unit. See Figure A-2 in the Appendix for examples. If not available, report as null.
5	geo_unit_code_2	Text(20)	If Available	Alternate geologic unit grouping. This can be a sub-classification of geologic_unit_code_1 or a layer used for groundwater flow/transport computer modeling that contains the lithologic unit. See Figure A-2 in the Appendix for examples. If not available, report as null.
6	remark_1	Text(255)	If Available	Comments (if any) on the lithologic unit. If not available, report as null.
7	remark_2	Text(255)	If Available	Additional comments on the lithologic unit. If not available, report as null.
8	moisture	Text(1)	If Available	This field indicates if any moisture detected within the lithologic unit. Enter "Y" for yes or "N" for no. If not available, report as null.
9	permeable	Text(20)	If Available	Description of the permeability of the lithologic unit such as "IMPERVIOUS", "SEMI", "PERMEABLE", or "VERY". If not available, report as null.
10	consolidated_yn	Text(1)	If Available	This field indicates if lithologic units are consolidated. Enter "Y" for yes or "N" for no. If not available, report as null.
11	color	Text(20)	If Available	Color of the lithologic unit. If not available, report as null.
12	observation	Text(255)	If Available	General field observations of the lithologic unit. If not available, report as null.

Table 5-2 Lithology File Data Structure

Column #	Column Name	Data Type	Required	Description
13	consistency	Text(20)	If Available	Description of the consistency of the soil, such as "VERY SOFT", "SOFT", "FIRM", "HARD", or "VERY HARD". If not available, report as null.
14	sorting	Text(20)	If Available	Geologic description of the grain size distribution of the lithologic unit. Use "POOR" for soil with a wide range of particle sizes or "WELL" for soil with a narrow range of particle sizes. If not available, report as null.
15	grainsize	Text(20)	If Available	Description of grain size. If not available, report as null.
16	odor	Text(20)	If Available	Description of odor from the soil. If not available, report as null.

5.3 WELL FILE

The Well File contains general information relating to well installation.

Each Well File must be named according to the following convention:

EPAR5WEL_v2.txt (or .csv, .xls, .mdb)

Table 5-3 Well File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required PK	Well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD.
2	alternate_well_id	Text(30)	If Available	Used to track historical well names if any. If not available, report as null.
3	well_description	Text(30)	If Available	Used for additional well description, if necessary. If not available, report as null.
4	well_owner	Text(30)	If Available	Name of entity that owns the well. If not available, report as null.
5	well_purpose	Text(20)	If Available	Purpose of well. If not available, report as null
6	well_status	Text(20)	If Available	Current status of well. If not available, report as null
7	top_casing_elev	Numeric	If Available	Elevation of the top of well casing. Elevation must be in feet. If not available, report as null.
8	datum_value	Numeric	Required PK	Value (i.e., elevation) of datum used to reference measurement of water level depths. (EPA normally uses top of well casing for datum.)
9	datum_unit	Text(15)	Required PK	Unit of measure for the well datum. Use values in Table A-17 of the Appendix.

Table 5-3 Well File Data Structure

Column #	Column Name	Data Type	Required	Description
10	datum_desc	Text(70)	Required PK	Description of the datum, such as "TOP OF WELL CASING".
11	step_or_linear	Text(6)	If Available	Use only for re-surveys of well elevations. If a section of the well casing was removed or added use "STEP" as the value. If nothing was added or removed from the last survey, use "LINEAR" as the value. If not available, report as null.
12	datum_start_date	Date/Time	Required PK	Date that datum was first used to take measurements in MM/DD/YYYY format.
13	datum_collect_ method_code	Text(2)	If Available	Method used to determine the datum elevation. Use codes in Table A-6 of the Appendix. If not available, report as null.
14	depth_of_well	Numeric	If Available	Depth of the well bottom below ground surface If not available, report as null.
15	depth_unit	Text(15)	If Available	Unit of measurement for depth. Use values in Table A-17 of the Appendix. If not available, report as null.
16	depth_measure_ method	Text(20)	If Available	Method of measuring depth of well. If not available, report as null.
17	stickup_height	Text(8)	If Available	Height of casing above ground surface. If not available, report as null.
18	stickup_unit	Text(15)	If Available	Unit of measure for the stickup height. Use values in Table A-17 of the Appendix. If not available, report as null.
19	sump_length	Text(20)	If Available	Length of sump. If not available, report as null.
20	sump_unit	Text(15)	If Available	Unit of measure for the sump length. Use values in Table A-17 of the Appendix. If not available, report as null.
21	installation_date	Date/Time	If Available	Date of well installation in MM/DD/YYYY format. If not available, report as null.
22	construct_start_ date	Date/Time	If Available	Date well construction began in MM/DD/YYYY format. If not available, report as null.
23	construct_complete _date	Date/Time	If Available	Date well construction was completed in MM/DD/YYYY format. If not available, report as null.
24	construct_ contractor	Text(20)	If Available	Name of contractor that installed well. If not available, report as null.
25	pump_type	Text(20)	If Available	Type of pump used at well such as centrifugal, propeller, jet, helical, rotary, etc. If not available, report as null.
26	pump_capacity	Text(6)	If Available	Capacity of pump. If not available, report as null. ***Note:*** *Must be reported in the same units as pump_yield (Column 28).*
27	pump_unit	Text (15)	If Available	Unit of measure for the pump capacity and yield. Use values in Table A-17 of the Appendix. If not available, report as null.
28	pump_yield	Text(6)	If Available	The yield of the pump. If not available, report as null. ***Note:*** *Must be reported in the same units as pump_capacity (Column 26).*

Table 5-3 Well File Data Structure

Column #	Column Name	Data Type	Required	Description
29	pump_yield_ method	Text(20)	If Available	Method used for pump yield. If not available, report as null.
30	weep_hole	Text(1)	If Available	Indicates if there is a weep hole. Enter "Y" for yes or "N" for no. If not available, report as null.
31	head_configuration	Text(50)	If Available	Description of the well-head. If not available, report as null.
32	access_port_yn	Text(1)	If Available	Indicates if there is an access port. Enter "Y" for yes or "N" for no. If not available, report as null.
33	casing_joint_type	Text(50)	If Available	Type of casing joint, such as "THREADED", "FLUSH", or "SOLVENT-WELDED". If not available, report as null.
34	perforator_used	Text(50)	If Available	Description of well perforation, such as "SLOTTED", "DRILLED", or "WOUND". If not available, report as null.
35	intake_depth	Numeric	If Available	Depth in feet below ground surface of the well intake. If not available, report as null.
36	disinfected_yn	Text(1)	If Available	Indicates if the well was disinfected. Enter "Y" for yes or "N" for no. If not available, report as null.
37	historical_ reference_elev	Numeric	Reserved for future use	This field is only to be used by EPA Region 5 personnel. Please leave blank. ***Note**: Historical reference value. Used for the elevation of past reference points. Elevation must be in feet.*
38	geologic_unit_code	Text (20)	If Available	Geologic unit in which the well intake is installed. If not available, report as null.
39	remark	Text (255)	If Available	Available for general remarks. If not available, report as null.

5.4 WELL CONSTRUCTION FILE

The Well Construction File contains information relating to well construction and well segments. Information is required for all well segments within each well, including surface plug, protective casing, well casing, annular backfill, annular seal, screen, and filter pack. In order to obtain the depth of groundwater samples, it is particularly important that the depths of the top and bottom of the well screen be submitted for each well. Each well construction EDD file must be named according to the following convention:

EPAR5WSG_v1.txt (or .csv, .xls, .mdb)

Table 5-4 Well Construction File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required PK	Well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD.

Table 5-4 Well Construction File Data Structure

Column #	Column Name	Data Type	Required	Description
2	segment_type	Text(20)	Required PK	Type of segment within well (e.g., protective casing, well casing, screen, etc.). Use values in Table A-19 of the Appendix.
3	material_type_code	Text(20)	Required PK	Material description of well segment. Use values in Table A-19 of the Appendix.
4	start_depth	Numeric	Required PK	Depth, in feet below ground surface, of the top of the described segment.
5	end_depth	Numeric	Required PK	Depth, in feet below ground surface, of the bottom of the described segment.
6	depth_unit	Text(15)	Required PK	The unit of depth measurements. Currently all depth measurements must be reported in feet (ft).
7	inner_diameter	Numeric	If Available	The inside diameter of the described segment. If not available, report as null.
8	outer_diameter	Numeric	If Available	The outside diameter of the described segment. If not available, report as null.
9	diameter_unit	Text(15)	If Available	The unit of diameter measurements. Use values in Table A-17 of the Appendix. If not available, report as null.
10	thickness	Numeric	If available	Thickness of the described well segment. If not available, report as null.
11	thickness_unit	Text(15)	If Available	The unit of measurement for thickness. Use values in Table A-17 of the Appendix. If not available, report as null.
12	slot_type	Text(20)	If Available	Type of slots in screen segment such as "BRIDGE", "SHUTTER", and "CONTINUOUS". If not available, report as null.
13	slot_size	Numeric	If Available	Width of slots. If not available, report as null.
14	slot_size_unit	Text(15)	If Available	The unit of measurement for slot size. Use values in Table A-17 of the Appendix. If not available, report as null.
15	perf_length	Numeric	If Available	Length of perforated portion of screen in feet. If not available, report as null.
16	screen_type	Text(15)	If Available	Type of screen. If not available, report as null.
17	material_quantity	Text(20)	If Available	Quantity of material used in pounds. Applicable to annular seal/fill material. If not available, report as null.
18	material_density	Text(20)	If Available	Density of the annular seal material in pounds per feet cubed (lbs/ft^3). If not available, report as null.
19	remark	Text(255)	If Available	Remarks regarding the segment. If not available, report as null.

5.5 GEOLOGY SAMPLE FILE

The Geology Sample File contains geotechnical sample information. (Samples results related to chemical analyses should be reported using the Chemistry EDD.)

Each Geology Sample File must be named according to the following convention:

EPAR5GSMP_v2.txt (or .csv, .xls, .mdb)

Table 5-5 Geology Sample File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required	Sample collection location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD.
2	geo_sample_ code	Text(40)	Required PK	Unique sample identifier. Considerable flexibility is given in the methods used to derive and assign unique sample identifiers in the manner which the Data Provider is most comfortable, but uniqueness throughout the EDD is strictly enforced.
3	sample_name	Text(50)	If Available	Name or description of sample. Does not have to be a unique. If not available, report as null.
4	sample_top	Numeric	Required	Depth, in feet below ground surface, to top of sample.
5	sample_ bottom	Numeric	Required	Depth, in feet below ground surface, to bottom of sample.
6	sampling_date	Date/Time	If Available	Date and time sample was collected in MM/DD/YYYY HH:MM format. Time must be reported in 24-hr (military) format. If not available, report as null.
7	sample_ method	Text(30)	If Available	Method used to obtain sample, e.g., split spoon or Shelby tube. If not available, report as null.
8	material_type	Text(40)	If Available	Material type of geologic sample. Use values in Table A-18 of the Appendix. If not available, report as null.
9	sample_desc	Text(255)	If Available	General description of the sample or sampling activities. If not available, report as null
10	geologic_ unit_code	Text(20)	If Available	Code used to identify the geologic unit of the sample. If not available, report as null
11	liquid_limit	Numeric	If Available	Liquid limit (LL) of the sample. If not available, report as null
12	plastic_limit	Numeric	If Available	Plastic Limit (PL) of the sample. If not available, report as null.
13	shrinkage_ limit	Numeric	If Available	Shrinkage limit of the sample. If not available, report as null.
14	flow_index	Numeric	If Available	Flow index of the sample. If not available, report as null.
15	plasticity_ index	Numeric	If Available	Plasticity index of the sample. If not available, report as null.

Table 5-5 Geology Sample File Data Structure

Column #	Column Name	Data Type	Required	Description
16	activity	Numeric	If Available	Activity of the sample. If not available, report as null.
17	e	Numeric	If Available	Void ratio of the sample. If not available, report as null.
18	e_max	Numeric	If Available	Maximum void ratio of the sample. If not available, report as null.
19	e_min	Numeric	If Available	Minimum void ratio of the sample. If not available, report as null.
20	n	Numeric	If Available	Porosity of the sample. If not available, report as null.
21	specific_ gravity	Numeric	If Available	Specific gravity of the sample. If not available, report as null.
22	w	Numeric	If Available	Water content of the sample. If not available, report as null.
23	opt_w	Numeric	If Available	Optimum water content. If not available, report as null.
24	s	Numeric	If Available	Degree of saturation of the sample. If not available, report as null.
25	K	Numeric	If Available	Hydraulic conductivity of the sample. If not available, report as null.
26	K_unit	Text(15)	If Available	Unit of measure for K (hydraulic conductivity). Use values in Table A-17 of the Appendix. If not available, report as null.
27	unit_wt	Numeric	If Available	Unit weight of the sample. If not available, report as null.
28	sat_unit_wt	Numeric	If Available	Saturated unit weight of the sample. If not available, report as null.
29	dry_unit_wt	Numeric	If Available	Dry unit weight of the sample. If not available, report as null.
30	dry_unit_wt_ max	Numeric	If Available	Maximum dry unit weight of the sample. If not available, report as null.
31	dry_unit_wt_ min	Numeric	If Available	Minimum dry unit weight of the sample. If not available, report as null.
32	density_unit	Text(15)	If Available	Unit of measure for the densities of the sample. Use values in Table A-17 of the Appendix. If not available, report as null.
33	rel_density	Numeric	If Available	Relative density of the sample. If not available, report as null.
34	rel_ compaction	Numeric	If Available	Relative compaction of the sample. If not available, report as null.
35	consistency	Text(20)	If Available	Description of the consistency of the soil sample such as "VERY SOFT", "SOFT, FIRM", "HARD" or "VERY HARD". If not available, report as null.
36	organic_ carbon	Numeric	If Available	Organic carbon content of sample. If not available, report as null.
37	organic_ carbon_unit	Text (15)	If Available	Unit of measurement of organic content. Use values in Table A-17 of the Appendix. If not available, report as null.

5.6 WATER TABLE FILES

The Water Table File stores data pertaining to the water table and is used to record groundwater data during drilling activities.

Each Water Table File must be named according to the following convention:

EPAR5TBL_v1.txt (or .csv, .xls, .mdb)

Table 5-6 Water Table File Data Structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text(20)	Required PK	Soil boring or well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD.
2	type	Text(20)	Required PK	Aquifer designation, such as "UNCONFINED1", "CONFINED1", or "CONFINED2".
3	sequence	Text(12)	Required PK	Designation of when water level measurement was taken. Use "UNSTABILIZED" if measurement was taken before water stabilized and use "STABILIZED" if measurement taken after stabilization.
4	depth	Numeric	Required PK	Depth of water table, in feet, below reference point.
5	flowing_yn	Text(1)	If Available	This field indicates if the water table is flowing. Enter "Y" for yes or "N" for no. If not available, report as null.
6	measurement_ method	Text(50)	If Available	Method of measuring water table depth. If not available, report as null.
7	capped_pressure	Numeric	If Available	Hydrostatic pressure of confined aquifer. If not available, report as null.
8	capped_pressure_ unit	Text(15)	If Available	Unit of measure for capped pressure. Use values in Table A-17 of the Appendix. If not available, report as null.
9	reference_point	Text(50)	If Available	Description of reference point from which depth measurements were taken. If not available, report as null.
10	reference_elevation	Numeric	Required PK	Elevation of the reference point from which depth measurement were taken. Elevation must be in feet.
11	temperature	Numeric	If Available	Temperature of water in the water table. If not available, report as null.
12	temperature_unit	Text(15)	If Available	Unit of temperature. Use values in Table A-17 of the Appendix. If not available, report as null.

5.7 GEOLOGY DOWN-HOLE POINT DATA FILE

The Geology Down-Hole Point Data File stores data from down-hole logging methods such as Cone Penetrometer Tests and geophysics. All down-hole logging data should be submitted electronically. Report the parameter being measured in the "param" field, such as resistivity, and report the measured value at the depth of the measurement. Table 5-8 presents the Down-Hole Point Data File structure and Table 5-9 provides an example of a populated file.

Each Geology Down-Hole Point Data File must be named according to the following convention:

EPAR5DHP_v1.txt (or .csv, .xls, .mdb)

Table 5-7 Geology Down-Hole Point Data File data structure

Column #	Column Name	Data Type	Required	Description
1	sys_loc_code	Text20	Required PK	Sample collection location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the Location File (Table 3-3, Column 3) submitted in the current or previous EDD.
2	depth	Numeric	Required PK	Depth of measurement below ground surface in feet.
3	param	Text(20)	Required PK	The parameter being measured, such as tip stress, resistivity, or pore pressure.
4	param_value	Numeric	Required	The measured value of the parameter.
5	param_unit	Text(15)	Required	Unit of the measured value.

Table 5-8 Example of Down-Hole Point Data File

Sys_loc_code	Depth	Param	Param_Value	Param_Unit
MW01	10.8	Tip Stress	612	lb/in2
MW01	11.2	Tip Stress	624	lb/in2
MW01	10.8	Sleeve Stress	6.1	lb/in2
MW01	11.2	Sleeve stress	5.8	lb/in2
MW02	9.5	Resistivity	510	lb/in2
MW02	10.1	Resistivity	521	lb/in2
MW02	11.0	Resistivity	889	lb/in2

6.0 TECHNICAL SUPPORT

EPA Region 5 provides technical support for users of this EDD Specification Manual. For questions concerning data, data formats, and EDD submittal procedures, please contact GEOS Technical Support listed below. For more general questions relating to the facility, please contact the EPA RPM assigned to the facility.

GEOS Technical Support: (312) 353-1200, or GeosEDDSupport@epa.gov